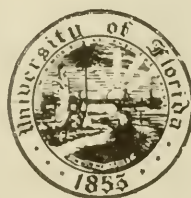


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ANNUAL REPORT OF THE
GOVERNOR OF THE
PANAMA CANAL, 1943

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ANNUAL REPORT
OF THE
GOVERNOR OF
THE PANAMA CANAL

FOR THE
FISCAL YEAR
ENDED JUNE 30
1943



UNITED STATES
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REPORTS OF HEADS OF DEPARTMENTS AND DIVISIONS

APPENDICES NOT PRINTED

The material in the annual report of the Governor of The Panama Canal, published in this volume, is to a large extent a summary of the data presented in the annual reports from the heads of departments and divisions in the Canal organization; the latter, regarded as appendixes to the report of the Governor, are not printed. The annual reports of the Panama Railroad Co. and the health department are published separately; the latter is compiled for calendar years only. The reports of the heads of departments and divisions, as listed below, are on file at the Washington office of The Panama Canal and at the office of the Governor at Balboa Heights, C. Z.

Engineer of maintenance, report of.

Special engineering division, report of supervising engineer.

Dredging division, report of superintendent.

Plans section, report of chief.

Assistant engineer of maintenance, report of.

Electrical division, report of electrical engineer.

Municipal engineering division, report of acting municipal engineer.

Locks division, report of superintendent.

Office engineering division, report of office engineer.

Section of meteorology and hydrography, report of chief hydrographer.

Civilian defense corps, report of director.

Marine division, report of marine superintendent.

Mechanical division, report of superintendent.

Supply department, report of chief quartermaster.

Accounting department, report of comptroller.

Executive department:

Division of civil affairs, report of acting chief.

Police and fire division, report of chief.

Division of schools, report of acting superintendent.

Panama Canal clubhouses, report of director.

Division of personnel supervision and management, report of director of personnel.

Surveying officer (acting), report of.

General counsel, report of.

Real-estate section, report of chief.

License bureau, report of chief.

Public defender, report of.

Paymaster (acting), report of.

Collector, report of.

Magistrates' courts:


Magistrate, Cristobal, report of.

Magistrate, Balboa, report of.

Washington office, report of chief of office and general purchasing officer.

Pardon board, report of chairman.

Senior aeronautical inspector, report of.



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ANNUAL REPORT
OF THE
GOVERNOR OF THE PANAMA CANAL

BALBOA HEIGHTS, CANAL ZONE,
October 22, 1943.

THE SECRETARY OF WAR,
Washington, D. C.

SIR: I have the honor to submit the report of the Governor of The Panama Canal for the fiscal year ended June 30, 1943. This report covers the first full fiscal year of the war.

In normal years the tolls collected by The Panama Canal are sufficient not only to cover all expenses of operation and maintenance of the Canal but also to provide an income to the United States amounting approximately to 3 percent of the capital investment in the Canal. During the past fiscal year the tolls receipts from commercial vessels using the Canal were only about one-third of the receipts in normal years, and were sufficient to cover only about two-thirds of the costs of operation. This unfavorable financial showing is attributed chiefly to the disturbance to world shipping resulting from the war, but also in considerable measure to the great increase in the number of ships enjoying tolls-free status. The financial features of the operations are regarded as of slight importance in comparison with the vital service rendered by the Panama Canal in the prosecution of the war. The expeditious transfer between the Atlantic and Pacific Oceans of war and commercial vessels of the United States and its allies has been effected as required during the entire war period, and 1,814 ocean-going commercial vessels transited the Canal during the past year. Although the total number of vessels, including both tolls-paying and tolls-free traffic, using the Canal was much less this year than in the years before the war, it has been impossible to curtail the operating force in proportion to the decline in traffic because of the imperative necessity of maintaining the Canal in constant readiness to meet any demand within its maximum capacity.

Last year it was deemed advisable to withhold printing and public distribution of the report until after the war because of the confidential nature of the statistics and other information included in the report. This year, with your approval, it is proposed to follow the same course.

Respectfully,

GLEN E. EDGERTON, *Governor.*

INTRODUCTION

Administration of the affairs of The Panama Canal enterprises involves three main elements: (a) Operation and maintenance of the Canal itself; (b) operation of the auxiliary enterprises necessary to provide adequately for the needs of shipping and of the Canal operating forces; and (c) government of the Canal Zone, populated by American civilians, native or tropical workers and their families, and by the United States Army and Navy defense forces.

In addition to these normal elements, during the past 4 years the Canal organization has performed very important functions as a supply and service agency for the greatly expanded activities of the Army and Navy, particularly in their extensive construction program. While the Canal organization and equipment were not designed for this duty and are by no means fully adequate, the services rendered are regarded as very creditable. These services have contributed materially to the efficiency and economy of the Army and Navy operations, and will continue to do so for the duration of the war.

The immediate supervision of the administration of these various activities rests with the heads of the nine major departments and divisions. Responsibility and control of the entire organization are centered in the Governor of The Panama Canal who is also the president of the Panama Railroad Co., an adjunct of the Canal enterprise, organized as a Government-owned corporation.

By Executive order of September 5, 1939, the provisions of section 13 of the Panama Canal Act, approved August 24, 1912, were invoked as an emergency measure and since that date the Commanding General, Panama Canal Department, United States Army, has exercised final authority and jurisdiction over the operation of the Panama Canal and all its adjuncts, appendants, and appurtenances, including control and government of the Canal Zone; and the Governor of The Panama Canal has been subject to that authority and the orders issued under it.

OPERATION AND MAINTENANCE OF THE CANAL

The primary function of the Panama Canal is to provide and maintain a waterway by means of which vessels may make the transit from one ocean to the other, and to handle such traffic as presents itself for transit with a maximum of safety and a minimum of delay. Essentially this involves the maintenance of the waterway, the operation of the locks, and the control of traffic through the Canal. Throughout the year the Canal force maintained its high standard of expeditious service not only in the actual transiting of ships but in providing emergency repairs, fuel, supplies, and the various supplementary services incidental to shipping. There were no interruptions of ship traffic during the year.

OPERATION OF AUXILIARY ENTERPRISES—BUSINESS OPERATIONS

Secondary only to the operation of the Canal is the function of supplying various services to shipping. Commerce requires at the Canal certain adjuncts of shipping, such as fuel oil and coaling plants, storehouses for foodstuffs, ship chandlery, and other essential supplies, marine and railway repair shops, terminal facilities for the transshipment of cargo and passengers, a railroad line across the Isthmus and a steamship line between New York and Panama, quarters and commissaries for the operating force, and other services essential to the economical and efficient operation of the Canal. These services, under coordinated and centralized control, are provided by the various business units of The Panama Canal and Panama Railroad Co. The coordination of such services with the transit of ships through the Canal assists materially in the efficient and economical operation of the waterway. Moreover, in providing marine repair facilities, fuel, and other supplies, the operation of these business units promotes traffic through the Canal.

GOVERNMENT—ADMINISTRATION

The usual functions of government, such as schools, police and fire protection, quarantine, public health, immigration service, posts, customs, aids to navigation, steamboat inspection, hydrographic and meteorological work, water supply, sewers, construction and maintenance of streets, and similar activities, which, in the United States are directed by various officers of the national, State, and municipal governments, are entrusted in the Canal Zone to the Governor, and are executed under his authority and responsibility. This centralization of all governmental activities under one head is essential to economical and efficient administration.

SERVICES RENDERED BY THE CANAL TO SHIPPING

The more important items of the business of the Canal and its adjuncts covering principal services to shipping are shown in the following table, which presents a comparison of the activities during the fiscal year 1943 with those of the 2 years immediately preceding.

	Fiscal year		
	1943	1942	1941
Transits of Canal by ocean-going vessels paying tolls...	1, 822	2, 688	4, 727
Transits of small commercial traffic not counted in ocean-going traffic.....	177	439	929
Free transits of public vessels of the United States and Panama, war vessels of Colombia, and vessels for repairs etc.....	2, 373	1, 516	955
Total transits.....	4, 372	4, 643	6, 611
Number of lockages during the year:			
Gatun locks.....	2, 796	4, 669	5, 103
Pedro Miguel locks.....	3, 661	4, 445	5, 018
Miraflores locks.....	3, 395	3, 775	4, 943

	Fiscal year		
	1943	1942	1941
Tolls levied on ocean vessels	\$7,356,684.94	\$9,752,207.38	\$18,157,739.68
Tolls on small commercial vessels	12,054.30	19,905.94	32,639.68
Total tolls	\$7,368,739.24	\$9,772,113.32	\$18,190,379.36
Cargo passing through Canal (tons)	10,599,966	13,607,444	24,950,791
Net tonnage (Panama Canal measurement) of transiting ocean vessels	8,233,999	11,010,004	20,642,736
Cargo per Panama Canal ton of ocean vessels, laden vessels only	1.435	1.381	1.369
Average tolls per ton of cargo, laden vessels only	\$0.633	\$0.645	\$0.657
Calls at Canal Zone ports by ships not transiting the Canal	483	948	1,035
Cargo handled and transferred at ports (tons)	2,018,377	2,508,421	2,390,618
Coal, sales and issues (tons)	77,906	127,644	87,446
Coal, number of commercial ships bunkered	294	305	211
Fuel oil pumped (barrels)	21,503,220	12,644,217	12,957,068
Fuel oil, number of ships served other than vessels operated by The Panama Canal	3,057	2,596	2,620
Ships repaired other than Panama Canal equipment	2,318	1,023	742
Ships drydocked other than Panama Canal equipment	332	185	122
Provisions sold to commercial ships (commissary sales)	\$737,061	\$543,996	\$361,276
Chandlery sold to ships (storehouse sales)	\$101,813	\$77,325	\$76,554

NET REVENUES

During the fiscal year the revenues from tolls charged commercial shipping using the Canal were \$7,368,680.74¹ and net civil revenues amounted to \$10,843.90. The net appropriation expenses were \$11,268,564.39, resulting in a net deficit from Canal operations proper of \$3,889,039.75. The business operations under The Panama Canal produced a net revenue of \$1,492,542.70. The combined net deficit accruing from the Canal and its business units during the fiscal year 1943 was thus \$2,396,497.05 as compared to a net revenue of \$1,304,074.35 in fiscal year 1942. As may be seen from table No. 21 on page 132 of this report this was the first time that The Panama Canal has shown a deficit for any fiscal year period since its official opening in 1920.

This deficit resulted from the sharp decline in commercial toll-paying traffic, after the entrance of the United States into the war in December 1941. Since that time the tolls collections have been at a rate sufficient to cover only about two-thirds of the expenses of operating the Canal. However, the Panama Canal is rendering such important service that there is no way in which it can reduce its expenditures in proportion to the reduction in the transits of toll-paying vessels through the Canal.

The gross capital investment as of the beginning of the fiscal year was \$647,722,440.89 and the net investment, \$514,407,363.78. Operations for the year incurred a loss of 0.47 percent on this net invest-

¹ This is the amount reported to the U. S. Treasury and includes billing for tolls rendered against certain vessels on which the tolls paying status was in doubt at the end of the year, and which accordingly are not included in all the other operating statistics on shipping through the Canal.

ment as against a return of 0.21 for the previous year. The foregoing figures do not include operations carried on by the Panama Railroad Co.

REPLACEMENTS

The past fiscal year marked the close of 29 years of successful operation of the Panama Canal; its dependable and efficient services are now taken for granted.

A very important factor which has contributed to this creditable record is the care that has been taken to maintain all parts of the Canal structures and equipment in good operable condition. Of the total capital value of The Panama Canal there are approximately \$100,000,000 of general structural values pertaining to nonbusiness units of the organization, which are subject to deterioration and require regular repair and periodical replacement.

Some of these structures, such as dams and concrete buildings, are still in excellent condition and require but little expenditure for upkeep; but on others deterioration has reached a point where replacement should not longer be deferred. These necessary replacements include not only the frame buildings originally erected to serve during the period of construction of the Canal but also docks, highways, and other features which, on account of ordinary deterioration or exceptional circumstances, have become unserviceable for present requirements or uneconomical to maintain.

Funds for the replacement of worn-out plant and equipment of nonbusiness units (with the exception of floating plant) must be appropriated by Congress from the general funds of the Treasury, because no funded replacement reserves for these operations are maintained by The Panama Canal. Although in the Canal accounts depreciation charges are made on all depreciable property, the funds representing the depreciation charges for nonbusiness units are turned in to the general fund of the Treasury each year and are not available for expenditure without appropriation. Thus, for this part of the organization, The Panama Canal depends on Congress to provide from these funds (which have been deposited annually in the Treasury in prior years) appropriations for the replacement of worn-out, obsolete, and uneconomical plant necessary to maintain the high standards of operation that have been established.

Not only is there necessity for the replacement of some of the existing facilities but the need also develops for facilities of new kinds. Funds for new facilities must also be obtained by direct appropriation.

Now that the United States is at war The Panama Canal has suspended its normal policy of replacement and expansion in its plant as a means of serving world shipping. At present all proposed new facilities are judged primarily upon the basis of their importance to the prosecution of the war.

SECTION I

CANAL OPERATION AND TRADE VIA THE PANAMA CANAL

STATISTICS ON CANAL TRAFFIC

Ocean-going ¹ commercial transits through the Panama Canal in the fiscal year 1943 numbered 1,822, the lowest year's traffic since 1917, when the number was 1,738. The following figures show the principal features of ocean-going commercial traffic through the Canal for the past three fiscal years:

	Fiscal year		
	1943	1942	1941
Number of transits.....	1,822	2,688	4,727
Net tonnage (Panama Canal measurement).....	8,233,999	11,010,004	20,642,736
Cargo carried—long tons (2,240 pounds).....	10,599,966	13,607,444	24,950,791
Tolls collected.....	\$7,356,685	\$9,732,207	\$18,157,740

Ocean-going traffic in 1943 was lower by 866 transits, or 32.2 percent, than in the preceding year. Monthly transits in 1943 varied from a low of 113 in August 1942 to a high of 196 transits in June 1943.

In the fiscal year 1939, which immediately preceded the outbreak of hostilities in Europe, Canal transits numbered 5,903, falling but a little short of equalling the peak years of 1928 through 1930, when transits averaged 6,190 per year. The outbreak of war in Europe early in the fiscal year 1940 had an immediate adverse effect on traffic, particularly in the normally important Europe-North America and Europe-South America trades. Traffic over the other main channels of trade continued for some time at about the prewar levels, but beginning with January 1941 (which approximately coincided with the discontinuance of heavy shipments to Japan) traffic declined sharply and at the time of the entry of United States into the war was about two-thirds of normal. After the entry of the United States into the war there was a further decline and during the last 4 months of fiscal year 1942 and the early months of fiscal year 1943 traffic was down to levels prevailing during the first few years immediately following the opening of the Canal. There was a slight increase in

¹ Includes all tolls-paying vessels having a measurement of 300 or more net tons (Panama Canal measurement) or 500 or more displacement tons.

traffic in the last half of 1943, with 146 more transits than in the first half of the year, resulting chiefly from increased shipments to India, the Persian Gulf, Suez, and other territories in Africa.

One of the interesting developments in war-time Canal traffic has been the routing through the Canal of certain cargoes which would have used other routes (because of the distances involved) had time and shipping economies been the only consideration. The principal new routes in this category were as follows: Between the east coast North America and certain Asiatic and African areas (including India, the Persian Gulf, the Suez Canal, and British South Africa) via the Panama Canal and the Pacific Ocean; and between Europe and east coast North America and the east coast South America, via the Panama Canal and the Straits of Magellan. The shipping of cargoes over these long routes, which was presumably influenced by safety considerations, accounted for the transit through the Canal of 3,783,297 tons of cargo, or over one-third of the total cargo routed through the Canal during the year. This cargo was segregated as follows: Between the east coast North America and Asia (excluding direct shipments to Russia), 2,141,795 tons; between the east coast North America and Africa, 1,274,276 tons; and between the east coast North America and Europe and the east coast South America, 367,226 tons. While a large amount of cargo passed through the Canal between eastern North America and Asia in prewar years, the bulk of this cargo was shipped to and from Japan and China, wherein the Panama Canal offers the shortest route.

Another feature of traffic through the Canal during the fiscal year 1943 was the practical disappearance of the United States intercoastal trade, which, in normal times, is the most important trade in Canal traffic. Traffic between the east coast United States and the Philippine Islands, which also constituted an important element in Canal traffic prior to the outbreak of war in the Pacific, was nonexistent in 1943. With regard to other normally important trade routes served by the Canal, there has been a sharp reduction in the east coast United States-west coast South America trade and in the east coast United States-Australasia trade since the entry of the United States into the war, while, as stated previously, traffic in the Europe-west coast North America and Europe-west coast South America trades has been greatly reduced from levels prevailing before the outbreak of war in Europe. The Europe-Australasia traffic has continued at levels approximating those existing prior to the outbreak of war.

The preceding figures and discussions have reference to the cargo passing through the Canal in 1943 on which definite information was furnished regarding the destination of the shipments. With respect

to the following tonnage of cargo during the same period, the ultimate destination was unknown by the ship's master at time of transit, or, if actually known, was not disclosed to the Panama Canal authorities:

	<i>Tons</i>
From Atlantic to Pacific.....	788, 634
From Pacific to Atlantic.....	100, 854

Although it is not possible to distribute this cargo among the various trade routes, it is likely that much of this cargo passed over the east coast United States-Asia and east coast United States-Africa routes; hence, the tonnage for these routes was probably somewhat higher than figures shown in the cargo statistics.

In numerous cases during the past year the masters of commercial vessels traveling in convoys did not know the actual destinations of their voyages, and in many cases where they did have this information they could not properly divulge it to The Panama Canal for statistical purposes. Effective July 1, 1943, The Panama Canal discontinued for the duration of the war the use of its standard cargo declaration form on which the masters of commercial vessels were required to make detailed statements as to the individual commodities carried and their origins and ultimate destinations.

The combined cargo movement in both directions in 1943, amounting to 10,599,966 long tons, showed a decrease of 3,007,478 tons (22.1 percent) from that in 1942. This decrease was all in the Pacific to Atlantic movement, since cargo moving in the opposite direction actually showed a small increase compared with 1942. The Atlantic to Pacific cargo movement in 1943 totaled 4,945,267 long tons, which was an increase of 260,345 tons, or 5.6 percent, over the similar movement in 1942. Although the United States intercoastal trade amounted to some 950,000 tons of cargo in this direction in 1942 as compared with no shipments in 1943, a heavy cargo movement to destinations in Asia and Africa was of sufficient volume to cause an increase in the over-all movement. The movement of cargo from the Pacific to the Atlantic dropped from 8,922,522 long tons in 1942 to 5,654,699 long tons in 1943, a decrease of 3,267,823 tons, or 36.6 percent. The reduction in cargo shipments routed from the west coast South America to the United States and the practical disappearance of cargo in the United States intercoastal trade and in that from the Philippine Islands to the United States, were the principal causes of the large decrease in the Pacific to Atlantic cargo movement.

Further details of individual trade routes and commodities are presented on pages 12 through 20 of this report.

In the fiscal year 1943, transits of local vessels under 300 net tons, Panama Canal measurement, or under 300 displacement tons, numbered 177, on which tolls of \$12,054.30 were paid. Transits of vessels owned, operated, or under charter of the United States and Panama-

nian Governments, war vessels of the Colombia Government, and vessels transiting solely for repairs, none of which paid tolls, numbered 2,373 as against 1,516 for 1942. The total of all tolls-paying and free transits combined was 4,372 in the fiscal year 1943 as compared with 4,643 in 1942 and 6,611 in 1941, equivalent to averages of 11.98, 12.72 and 18.11 transits per day, respectively.

The receipts from tolls as reported to the United States Treasury for the fiscal year 1943 were \$7,368,680.74. This figure includes tolls on local commercial traffic amounting to \$12,054.30, which are not included in the Canal statistics covering ocean-going commercial traffic. The tolls receipts reported to the United States Treasury moreover reflect minor adjustments for overcharges and undercollections which in 1943 amounted to \$58.50. These two items account for the difference of \$11,995.80 between the tolls receipts reported to the Treasury and the figure for tolls levied on ocean-going commercial traffic as reported in the following studies of traffic which are based on tolls levied at the time of transit.

CANAL TRAFFIC BY FISCAL YEARS 1915 TO 1943

Comparative traffic statistics covering ocean-going vessels for each fiscal year since the Canal was opened to navigation are shown in the following table:

Fiscal year ended June 30—	Number of transits	Panama Canal net tonnage ¹	Tolls	Tons of cargo
1915 ²	1,058	3,507,000	\$4,366,747.13	4,888,400
1916 ³	724	2,212,000	2,403,089.40	3,093,335
1917	1,738	5,357,000	5,620,799.83	7,054,720
1918	1,989	6,072,000	6,428,780.26	7,525,768
1919	1,948	5,658,000	6,164,290.79	6,910,097
1920	2,393	7,898,000	8,507,938.68	9,372,374
1921	2,791	10,550,000	11,268,681.46	11,395,971
1922	2,665	10,556,000	11,191,828.56	10,882,607
1923	3,908	17,206,000	17,504,027.19	19,566,429
1924	5,158	24,181,000	24,284,659.92	26,993,167
1925	4,592	21,134,000	21,393,718.01	23,956,549
1926	5,087	22,906,000	22,919,931.89	26,030,016
1927	5,243	24,245,000	24,212,250.61	27,733,555
1928	6,253	27,229,000	26,922,200.75	29,615,651
1929	6,289	27,585,000	27,111,125.47	30,647,768
1930	6,627	27,716,000	27,059,998.94	30,018,429
1931	5,370	25,690,000	24,624,599.76	25,065,286
1932	4,362	21,842,000	20,694,704.61	19,798,986
1933	4,162	21,094,000	19,601,077.17	18,161,165
1934	5,234	26,410,000	24,047,183.44	24,704,009
1935	5,180	25,720,000	23,307,062.93	25,309,527
1936	5,382	25,923,000	23,479,114.21	26,505,943
1937	5,387	25,430,000	23,102,137.12	28,108,375
1938	5,524	25,950,383	23,169,888.70	27,385,924
1939	5,903	27,170,007	23,661,021.08	27,866,627
1940	5,370	24,144,366	21,144,675.26	27,299,016
1941	4,727	20,642,736	18,157,736.68	24,950,791
1942	2,688	11,010,004	9,752,207.38	13,607,444
1943	1,822	8,233,999	7,356,684.94	10,599,966
Total	119,024	533,272,495	509,458,165.27	575,247,892

¹ Panama Canal net tonnage prior to 1939 are estimated figures based on revised measurement rules which became effective Mar. 1, 1938.

² Canal opened to traffic Aug. 15, 1914.

³ Canal closed to traffic approximately 7 months of fiscal year by slides.

TRAFFIC BY MONTHS—FISCAL YEARS 1943 AND 1942

The ocean-going commercial traffic during each month of the fiscal year 1943 is summarized in the following table, in which are inserted for comparison, corresponding figures for the preceding year:

Month	Number of transits		Panama Canal net tonnage		Tons of cargo		Tolls	
	1942-43	1941-42	1942-43	1941-42	1942-43	1941-42	1942-43	1941-42
July.....	129	293	528, 236	1, 262, 145	645, 385	1, 658, 974	\$463, 097. 60	\$1, 121, 823. 84
August.....	113	263	460, 666	1, 062, 138	567, 302	1, 366, 266	411, 701. 80	949, 693. 46
September.....	120	295	591, 941	1, 178, 373	721, 421	1, 481, 453	525, 664. 44	1, 050, 803. 46
October.....	162	335	757, 410	1, 372, 137	1, 005, 486	1, 718, 663	673, 820. 78	1, 215, 888. 70
November.....	146	318	599, 273	1, 295, 202	846, 889	1, 545, 526	536, 734. 14	1, 143, 819. 90
December.....	168	269	761, 032	1, 024, 882	1, 021, 333	1, 282, 641	685, 880. 40	915, 016. 10
January.....	151	208	733, 660	866, 317	962, 567	1, 084, 614	654, 032. 52	759, 856. 58
February.....	150	175	710, 943	707, 355	944, 635	855, 694	650, 633. 26	618, 727. 14
March.....	125	150	582, 891	620, 626	767, 679	788, 106	524, 161. 96	554, 810. 40
April.....	183	120	805, 835	516, 061	1, 080, 943	607, 187	720, 445. 60	458, 699. 34
May.....	179	142	853, 676	560, 783	1, 067, 577	706, 772	760, 599. 78	492, 239. 58
June.....	196	120	848, 436	543, 985	968, 749	510, 548	749, 912. 66	470, 828. 88
Total.....	1, 822	2, 688	8, 233, 999	11, 010, 004	10, 599, 966	13, 607, 444	7, 356, 684. 94	9, 752, 207. 38
Average per month.....	152	224	686, 167	917, 500	883, 331	1, 133, 954	613, 057. 07	812, 683. 95

NATIONALITY OF VESSELS TRANSITING CANAL

Segregation of the ocean-going traffic through the Canal during the fiscal year 1943, by nationality, is presented in the following table which shows transits, measurement tonnage, tolls, and tons of cargo:

Ocean-going commercial traffic¹ through the Panama Canal during the fiscal year 1943, by nationality of vessels

Nationality	Number of transits	Measured tonnage			Tolls	Tons of cargo
		Panama Canal net	Registered			
			Gross	Net		
Argentine.....	5	18, 012	21, 439	12, 167	\$16, 210. 80	30, 980
Belgian.....	2	14, 990	21, 136	11, 114	12, 141. 90	15, 055
British.....	491	2, 752, 998	3, 677, 018	2, 247, 781	2, 553, 266. 90	3, 468, 555
Chilean.....	81	251, 237	332, 382	196, 029	226, 113. 30	273, 756
Greek.....	9	34, 522	37, 351	22, 406	31, 069. 80	53, 404
Honduran.....	13	31, 986	50, 949	28, 581	26, 599. 50	17, 297
Netherlands.....	223	398, 919	475, 304	276, 289	352, 790. 10	455, 096
Norwegian.....	113	518, 203	597, 104	357, 279	457, 528. 86	674, 829
Panamanian.....	65	151, 091	194, 638	114, 777	130, 839. 30	175, 254
Peruvian.....	1	2, 161	3, 090	1, 865	1, 944. 90	3, 746
Philippine.....	3	14, 455	15, 951	9, 698	13, 009. 50	20, 331
Portuguese.....	1	(?)	(?)	(?)	602. 00	.....
Soviet.....	42	73, 639	104, 719	60, 019	68, 675. 10	107, 681
Swedish.....	4	15, 009	17, 048	11, 712	13, 508. 10	21, 086
United States.....	755	3, 910, 928	5, 273, 716	3, 196, 477	3, 411, 210. 78	5, 210, 340
Uruguayan.....	3	10, 666	11, 290	7, 007	9, 599. 40	15, 592
Yugoslav.....	11	35, 183	40, 615	24, 929	31, 664. 70	56, 064
Totals:						
1943.....	1, 822	8, 233, 999	10, 873, 750	6, 578, 130	7, 356, 684. 94	10, 599, 966
1942.....	2, 688	11, 010, 004	14, 759, 299	8, 742, 192	9, 752, 207. 38	13, 607, 444
1941.....	4, 727	20, 642, 736	26, 852, 831	16, 019, 065	18, 157, 739. 68	24, 950, 791

¹ Ocean-going commercial traffic includes only tolls-paying vessels of 300 or more net tons, Panama Canal measurement, or 500 or more displacement tons.

² Displacement tonnage.

VESSELS PAYING TOLLS ON DISPLACEMENT TONNAGE

In the Canal traffic statistics, foreign naval vessels such as transports, supply ships, tankers, etc., with a measurement of 300 net tons (Panama Canal measurement) or more, and vessels of war, dredges, etc., with a displacement of 500 tons or more, are classified as ocean-going commercial vessels. Statistics on these vessels, except as relate to displacement tonnage, have been included in the traffic summaries shown on the preceding pages. Displacement tonnage cannot be combined with net tonnage, and the following table shows statistics covering 28 vessels which transited the Canal during the fiscal year 1943 and paid tolls on displacement tonnage.

Type of vessel	Number of transits	Displacement tonnage	Tolls
Dredges.....	1	1,296	\$648.00
Sloops.....	1	1,204	602.00
Warships.....	26	171,736	85,868.00
Total.....	28	174,236	87,118.00

SMALL COMMERCIAL VESSELS TRANSITING CANAL

Transits of small cargo-carrying vessels, and other small craft such as yachts, tugs, etc., of less than 300 net tons (Panama Canal measurement), or 500 displacement tons are excluded from statistics on ocean-going commercial traffic, although they are not exempt from the payment of tolls. The number of these small vessels transiting the Canal during the year, together with the tonnage, tolls, and amount of cargo carried, is shown in the following table:

	Atlantic to Pacific	Pacific to Atlantic	Total
Number of transits:			
Rated on net tonnage.....	89	68	157
Rated on displacement tonnage.....		20	20
Total transits.....	89	88	177
Panama Canal net tonnage.....	6,354	5,389	11,743
Displacement tonnage.....		5,007	5,007
Tolls.....	\$5,472.00	\$6,582.30	\$12,054.30
Cargo (tons).....	10,420	639	11,059

VESSELS ENTITLED TO FREE TRANSIT

Naval and other vessels owned and operated in the Government service of the United States and Panama, war vessels of Colombia, and vessels transiting solely for the purpose of having repairs made at the Canal shops, are exempt from the payment of tolls, and such vessels are not included in the general transit statistics pertaining to Canal traffic.

Prior to the outbreak of the war on December 7, 1941, there had been kept, as a matter of record, the number of vessels by group,

the measured tonnage, the amount of tolls to which they would have been subject to at the prescribed rates if tolls had been charged against them, and the cargo carried by such vessels in ocean-to-ocean movement. Since the beginning of hostilities information of this nature has not been requested and only the total number of vessels transiting free of charge has been recorded for routine statistical purposes. For the fiscal year 1943 there were a total of 2,373 vessels transiting the Canal free of tolls.

CARGO SHIPMENTS BY TRADE ROUTES

The following tables present, by direction, cargo tonnage passing through the Canal over various routes of trade, together with the principal commodities making up these shipments, for the fiscal year 1943 and, for comparison, corresponding figures for the fiscal year 1941 and 1939. The purpose of presenting figures for 1941 is to give a picture of current traffic trends in comparison with those immediately preceding the entry of the United States into the war, whereas the 1939 figures are given to show the present flow of traffic in comparison with that of the year which immediately preceded the outbreak of hostilities in Europe.

These tables include only cargo carried by ocean-going commercial vessels, that is large vessels paying tolls. During the past year many vessels owned or operated by the United States Government transited the Canal carrying cargo which is not included in any of the following figures. This would make important differences only in shipments to war areas.

TOTAL CARGO SHIPMENTS—ATLANTIC TO PACIFIC

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
East coast United States to—			
West coast United States.....		2,947,549	2,391,523
West coast Central America.....	6,563	52,423	31,710
West coast South America.....	226,184	456,335	192,732
East coast South America.....	54,284		
Hawaiian Islands.....		227,795	141,804
Australasia.....	259,200	416,292	374,544
Africa.....	883,976		
Philippine Islands.....		257,425	277,399
Asia (including Japan).....	1,493,388	3,082,897	2,593,808
Balboa, C. Z.....	47,784	77,599	8,514
High seas.....	670,580		
Other territories.....		20,590	22,292
Total from east coast United States.....	3,642,049	7,538,905	6,034,326
East coast Canada to—			
West coast Canada.....		11,594	46,893
Australasia.....	33,047	142,780	222,720
Asia (including Japan).....	38,347	10,700	50,943
Other territories.....	24,394	13,626	27,854
Total from east coast Canada.....	95,788	178,700	348,410

TOTAL CARGO SHIPMENTS—ATLANTIC TO PACIFIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
East coast Central America-Mexico to—			
West coast Central America-Mexico.....	2, 979	29, 431	74, 857
Asia (including Japan).....		115, 565	21, 757
Other territories.....	1, 119	20, 486	21, 938
Total from east coast Central America-Mexico.....	4, 098	165, 482	118, 552
East coast South America to—			
West coast United States.....		152, 603	110, 521
West coast South America.....	750	51, 917	152, 649
Asia (including Japan).....		222, 759	124, 724
Other territories.....	10, 060	12, 719	19, 145
Total from east coast South America.....	10, 810	439, 998	407, 039
Cristobal, C. Z., to—			
West coast Central America-Mexico.....	8, 842	51, 804	50, 907
West coast South America.....	6, 608	139, 500	135, 986
Other territories.....	31, 039	25, 383	26, 854
Total from Cristobal.....	46, 489	216, 687	213, 747
West Indies to—			
West coast South America.....	11, 897	255, 884	177, 714
Balboa, C. Z.....	459, 083	130, 823	65, 307
Australasia.....	21, 488	20, 219	21, 942
Africa.....	135, 254		
Asia (including Japan).....	13, 368	64, 374	19, 892
High seas.....	86, 004		
Other territories.....	18, 881	31, 745	34, 079
Total from West Indies.....	745, 975	503, 045	318, 934
Europe to—			
West coast United States.....		23, 354	337, 401
West coast Canada.....		47, 607	78, 789
West coast Central America-Mexico.....			91, 873
West coast South America.....	42, 834	102, 694	415, 697
Australasia.....	316, 548	219, 657	542, 770
Asia (including Japan).....	26, 188	48, 625	35, 419
Other territories.....	14, 488		23, 849
Total from Europe.....	400, 058	441, 937	1, 525, 798
Asia and Africa to other territories.....		3, 692	44, 461
Total cargo—Atlantic to Pacific.....	4, 945, 267	9, 488, 446	9, 011, 267

TOTAL CARGO SHIPMENTS—PACIFIC TO ATLANTIC

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
West coast United States to—			
East coast United States.....	17, 103	3, 933, 753	4, 493, 203
Cristobal, C. Z.....	142, 287	107, 856	55, 073
West Indies.....	81, 388	147, 498	487, 189
Europe.....	163, 899	433, 660	2, 349, 888
Other territories.....		167, 712	136, 232
High seas.....	20, 169		
Total from west coast United States.....	424, 846	4, 790, 479	7, 521, 585
West coast Canada to—			
East coast United States.....		50, 962	201, 619
Europe.....	718, 468	1, 114, 069	2, 539, 436
Africa.....		137, 812	26, 910
Other territories.....	5, 060	64, 030	105, 487
Total from west coast Canada.....	723, 528	1, 366, 873	2, 873, 452

TOTAL CARGO SHIPMENTS—PACIFIC TO ATLANTIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
West coast Central America and Mexico to—			
East coast United States.....	7,366	126,119	30,649
Other territories.....	7,962	32,645	92,941
Total from west coast Central America.....	15,328	158,764	123,590
West coast South America to—			
East coast United States.....	1,304,555	2,961,992	2,447,257
East coast Canada.....		30,363	132,364
Cristobal, C. Z.....	67,239	150,092	143,186
West Indies.....	64,692	55,509	103,903
Europe.....	93,226	429,064	2,481,541
Other territories.....	10,255	12,514	36,864
High seas.....	62,521		
Total from west coast South America.....	1,602,488	3,639,534	5,345,115
From Balboa, C. Z.—Total.....	3	2,813	
Hawaiian Islands to—			
East coast United States.....	93,428	581,355	361,857
Europe.....		12,651	79,174
Total from Hawaiian Islands.....	93,428	594,006	441,031
Australasia to—			
East coast United States.....	230,018	266,592	86,999
East coast Canada.....	9,128	150,939	87,546
Europe.....	1,163,244	1,162,503	759,794
Other territories.....	1,427	12,377	12,001
Total from Australasia.....	1,403,817	1,592,411	946,340
Philippine Islands to—			
East coast United States.....		1,512,890	918,937
Other territories.....		11,905	2,525
Total from Philippine Islands.....		1,524,795	921,462
Asia (including Japan) to—			
East coast United States.....	671,665	1,640,278	280,593
Europe.....	99,735		363,048
Other territories.....	11,480	152,392	39,144
Total from Asia.....	782,880	1,792,670	682,785
East coast South America to—			
East coast United States.....	176,738		
Europe.....	119,228		
Other territories.....	10,542		
Total from east coast South America.....	306,508		
Africa to—			
East coast United States.....	237,956		
Europe.....	33,224		
High seas and other territories.....	10,078		
Total from Africa.....	281,258		
From high seas to high seas.....	20,615		
Total cargo—Pacific to Atlantic.....	5,654,699	15,462,345	18,855,360

IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— ATLANTIC TO PACIFIC

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
East coast United States to west coast United States:			
Iron and steel manufactures.....		1,237,651	784,485
Tinplate.....		50,025	67,839
Mineral oils.....		140,281	138,689
Sulphur.....		146,396	133,017
Chemicals, unclassified.....		53,537	48,743
Canned goods, various.....		119,461	94,119
Paper and paper products.....		125,027	129,607
All other commodities.....		1,075,171	995,024
Total this trade route.....		2,947,549	2,391,523
East coast United States to west coast Central America (no single outstanding commodity in this trade).			
East coast United States to west coast South America:			
Iron and steel manufactures.....	32,303	108,207	63,719
Machinery.....	12,191	22,125	16,473
Coal.....	36,592	90,434	2,023
Lubricating oils and greases.....	12,000	15,526	13,975
Paper and paper products.....	13,732	15,416	905
All other commodities.....	119,366	204,627	95,637
Total this trade route.....	226,184	456,335	192,732
East coast United States to east coast South America:			
Coal.....	14,717		
All other commodities.....	39,567		
Total this trade route.....	54,284		
East coast United States to Hawaiian Islands:			
Tinplate.....		55,970	37,916
All other commodities.....		171,825	103,888
Total this trade route.....		227,795	141,804
East coast United States to Australasia:			
Iron and steel manufactures.....	31,703	26,047	15,805
Tinplate.....	17,046	719	383
Machinery.....	10,658	11,893	9,856
Sulphur.....	21,665	129,754	95,637
Automobiles.....	10,302	15,432	37,570
Mineral oils.....	38,652	79,950	67,844
All other commodities.....	129,264	158,497	147,449
Total this trade route.....	259,290	416,292	374,544
East coast United States to Africa:			
War materials, unclassified.....	156,090		
Ammunition.....	52,779		
Ordnance, except ammunition.....	14,513		
Iron and steel manufactures.....	105,560		
Machinery.....	14,214		
Railroad material.....	11,591		
Automobiles.....	30,883		
Automobile accessories.....	14,654		
Mineral oils.....	275,565		
Canned goods, various.....	17,701		
All other commodities.....	190,426		
Total this trade route.....	883,976		
East coast United States to Philippine Islands:			
Iron and steel manufactures.....		74,696	96,497
All other commodities.....		182,729	180,902
Total this trade route.....		257,425	277,399
East coast, United States to Asia (including Japan):			
War materials, unclassified.....	420,413		
Government stores.....	87,794		
Ordnance, except ammunition.....	40,231		
Ammunition.....	68,156		
Explosives.....	26,300	3,044	20
Iron and steel manufactures.....	201,361	501,256	208,562

IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— ATLANTIC TO PACIFIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
East coast United States to Asia—Continued			
Machinery.....	43,366	69,118	38,520
Railroad material.....	34,556	15,367	10,343
Tinplate.....	5,936	59,805	33,627
Automobiles.....	123,900	25,544	18,328
Automobile parts and accessories.....	28,577	19,292	24,537
Iron, metal.....	6,173	77,406	197,872
Copper, metal.....	5,206	94,028	40,615
Lead, metal.....	80	59,724	13,772
Scrap metal.....	1,138	390,079	1,152,844
Mineral oils.....	68,044	720,508	298,280
Chemicals, unclassified.....	10,534	32,304	9,518
Phosphates.....	60	256,184	139,197
Canned goods, various.....	61,522	17,932	705
Flour.....	29,538	3,296	2,917
Wheat.....	13,026	225	2,267
Beans, edible.....	12,288		
Paper and paper products.....	5,958	87,628	3,335
Cotton, raw.....		65,969	175,934
All other commodities.....	199,231	608,188	223,206
Total this trade route.....	1,493,388	3,082,897	2,593,808
East coast United States to Balboa:			
Mineral oils.....	43,062	25,598	3,051
All other commodities.....	4,722	52,001	5,463
Total this trade route.....	47,784	77,599	8,514
East coast Canada to west coast Canada: (No single outstanding commodity in this trade.)			
East coast Canada to Australasia:			
Paper.....	5,231	85,842	139,836
All other commodities.....	27,816	56,938	82,884
Total this trade route.....	33,047	142,780	222,720
East coast Canada to Asia: (No single outstanding commodity in this trade.)			
East coast Central America-Mexico to west coast Central America-Mexico:			
Mineral oils.....		27,119	63,287
All other commodities.....	2,979	2,312	11,570
Total this trade route.....	2,979	29,431	74,857
East coast Central America-Mexico to Asia (including Japan):			
Mineral oils.....		79,280	21,757
All other commodities.....		36,285	
Total this trade route.....		115,565	21,757
East coast South America to west coast United States:			
Coffee.....		54,870	45,113
All other commodities.....		97,733	65,408
Total this trade route.....		152,603	110,521
East coast South America to west coast South America:			
Mineral oils.....	112	29,398	131,008
All other commodities.....	638	22,519	21,641
Total this trade route.....	750	51,917	152,649
East coast South America to Asia (including Japan):			
Cotton.....		100,167	71,545
All other commodities.....		122,592	53,179
Total this trade route.....		222,759	124,724
Cristobal to west coast Central America. (No single outstanding commodity in this trade.)			
Cristobal to west coast South America. (No single outstanding commodity in this trade.)			

IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— ATLANTIC TO PACIFIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
West Indies to west coast South America:			
Mineral oils.....	10,554	251,113	165,573
All other commodities.....	1,343	4,771	12,141
Total this trade route.....	11,897	255,884	177,714
West Indies to Balboa:			
Mineral oils.....	446,811	130,823	65,307
All other commodities.....	12,272		
Total this trade route.....	459,083	130,823	65,307
West Indies to Australasia:			
Asphalt.....	21,484	9,955	3,453
All other commodities.....	4	10,264	18,489
Total this trade route.....	21,488	20,219	21,942
West Indies to Africa:			
Mineral oils.....	135,254		
(No other commodities in this trade.)			
West Indies to Asia (including Japan):			
Salt.....		59,323	
Sugar.....	13,298		
All other commodities.....	70	5,051	19,892
Total this trade route.....	13,368	64,374	19,892
Europe to west coast United States. (No single outstanding commodity in this trade.)			
Europe to west coast Canada. (No single outstanding commodity in this trade.)			
Europe to west coast Central America. (No single outstanding commodity in this trade.)			
Europe to west coast South America:			
Cement.....	592	8,070	54,337
Chemicals, unclassified.....	14,997	9,567	16,004
Iron and steel manufactures.....	61	8,552	72,989
All other commodities.....	27,184	76,505	272,367
Total this trade route.....	42,834	102,694	415,697
Europe to Australasia:			
Ammunition.....	28,127		
Government stores.....	21,106		
Ordnance, except ammunition.....	14,641		
War materials, unclassified.....	15,073		
Iron and steel manufactures.....	23,191	30,255	101,345
Machinery.....	19,785	16,508	26,060
Soda and sodium compounds.....	27,922	9,836	1,628
Chemicals, unclassified.....	15,806	9,191	11,897
Salt.....	27,563	17,603	31,149
All other commodities.....	123,334	136,264	370,691
Total this trade route.....	316,548	219,657	542,770
Europe to Asia:			
Machinery.....	11,150		4,923
All other commodities.....	15,638	48,625	30,496
Total this trade route.....	26,188	48,625	35,419

IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— PACIFIC TO ATLANTIC

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
From west coast United States to east coast United States:			
Canned foods, various.....		742,595	735,122
Fruit, dried.....		131,021	157,016
Sugar.....		101,195	140,044
Flour, wheat.....		97,627	115,597
Beans, dried.....		53,261	68,922
Lumber.....		1,452,871	1,521,200
Wood pulp.....		99,883	188,777
Paper and paper products.....		69,738	81,382
Mineral oils.....	17,103	756,001	810,051
Asphalt and tar.....		42,784	64,113
All other commodities.....		385,877	610,979
Total this trade route.....	17,103	3,933,753	4,493,203
From west coast United States to Cristobal, C. Z.:			
Mineral oils.....	129,831	58,458	32,955
All other commodities.....	12,456	49,398	22,118
Total this trade route.....	142,287	107,856	55,073
From west coast United States to West Indies:			
Rice.....	28,665	25,458	17,308
Mineral oils.....		23,602	401,358
All other commodities.....	52,723	98,438	68,523
Total this trade route.....	81,388	147,498	487,189
From west coast United States to Europe:			
Canned foods, various.....	3,379	46,764	225,723
Fruit, dried.....	3,183	8,432	161,102
Fruit, fresh.....		1,841	319,176
Wheat.....		64,466	528,454
Barley.....			136,713
Lumber.....	38,588	194,681	159,535
Wood pulp.....	31,577	32,825	22,478
Cotton, raw.....	20,429	2,768	17,647
Borax.....	18,339	25,217	66,598
Chemicals.....	13,127	6,782	4,470
Mineral oils.....		29,109	605,776
All other commodities.....	35,277	20,775	102,216
Total this trade route.....	163,899	433,660	2,349,888
From west coast Canada to east coast United States:			
Lumber.....		35,313	167,856
All other commodities.....		15,649	33,763
Total this trade route.....		50,962	201,619
From west coast Canada to Europe:			
Wheat.....	60,334	60,100	972,584
Barley, oats and other grains.....	10,697	2,000	109,545
Canned foods, various.....	18,979	43,221	26,269
Lumber.....	397,296	816,836	1,136,276
Wood pulp.....	10,572	11,454	5,825
Lead, metal.....	89,626	82,614	117,875
Zinc, metal.....	63,131	87,666	67,827
Phosphates.....	13,111		
All other commodities.....	54,722	10,178	103,235
Total this trade route.....	718,468	1,114,069	2,539,436
From west coast Canada to Africa:			
Lumber.....		122,632	21,283
All other commodities.....		15,180	5,627
Total this trade route.....		137,812	26,910
From west coast Central America to east coast United States:			
Bananas.....		116,860	25,801
All other commodities.....	7,366	9,259	4,848
Total this trade route.....	7,366	126,119	30,649

IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— PACIFIC TO ATLANTIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
From west coast South America to east coast United States:			
Coffee.....	90,628	29,811	24,242
Cocoa and cocoa beans.....	10,312	7,406	5,181
Sugar.....	1,541	79,606	42,117
Wool.....	11,568	7,120	767
Copper, metal.....	261,989	290,091	82,959
Lead, metal.....	16,764	28,184	2,139
Iron ore.....	44,760	1,687,070	1,612,801
All other ores.....	149,319	150,956	59,176
Mineral oils.....	46,298	41,867	-----
Nitrates.....	607,496	535,776	546,352
All other commodities.....	63,880	104,105	71,523
Total this trade route.....	1,304,555	2,961,992	2,447,257
From west coast South America to east coast Canada:			
Mineral oils.....	-----	30,360	126,461
All other commodities.....	-----	3	5,903
Total this trade route.....	-----	30,363	132,364
From west coast South America to Cristobal, C. Z.:			
Coffee.....	25,493	110,985	93,785
All other commodities.....	41,746	39,107	49,401
Total this trade route.....	67,239	150,092	143,186
From west coast South America to West Indies:			
Rice.....	19,662	732	-----
Mineral oils.....	12,400	17,660	79,249
Nitrates.....	11,969	10,714	447
All other commodities.....	20,661	26,403	24,207
Total this trade route.....	64,692	55,509	103,903
From west coast South America to Europe:			
Sugar.....	-----	29,985	132,563
Beans, dried.....	-----	21,167	52,663
Barley.....	-----	-----	55,329
Oilseeds.....	96	220	65,013
Copper, metal.....	-----	-----	235,363
Ores, various.....	24,033	41,819	166,100
Mineral oils.....	47,532	79,998	679,000
Nitrates.....	6,526	213,326	864,384
All other commodities.....	15,039	42,549	231,126
Total this trade route.....	93,226	429,064	2,481,541
From Hawaiian Islands to east coast United States:			
Sugar.....	93,428	307,849	208,208
Canned fruit.....	-----	239,322	129,683
All other commodities.....	-----	34,154	23,966
Total this trade route.....	93,428	581,355	361,857
From Hawaiian Islands to Europe:			
Molasses and sirups.....	-----	12,651	79,174
(No other commodities this trade route.)	-----	-----	-----
From Australasia to east coast United States:			
Sugar.....	15,638	-----	15
Wheat.....	-----	76,302	-----
Wool.....	77,337	65,135	13,375
Lead, metal.....	16,086	13,206	-----
Ores, various.....	80,505	62,601	41,357
All other commodities.....	40,451	49,258	32,252
Total this trade route.....	230,018	266,592	86,999
From Australasia to east coast Canada:			
Sugar.....	-----	95,709	63,816
All other commodities.....	9,128	55,230	23,730
Total this trade route.....	9,128	150,939	87,546

IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— PACIFIC TO ATLANTIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1943	1941	1939
From Australasia to Europe:			
Dairy products.....	299,479	280,596	145,913
Cold storage meat.....	269,794	291,772	168,720
Wheat.....	151,789	93,159	5,326
Fruit, dried.....	34,521	13,174	311
Canned meat.....	31,631	7,824	2,158
Flour, wheat.....	24,066	8,869	400
Sugar.....	14,357	172,679	83,079
Wool.....	61,547	95,786	68,886
Tallow.....	29,697	26,140	16,157
Copra.....		13,140	82,147
Lead, metal.....	65,456	23,773	13,078
Zinc, metal.....	10,153	6,150	750
Ores, various.....	83,626	23,888	38,551
Phosphates.....		15,100	87,160
All other commodities.....	87,128	90,453	47,158
Total this trade route.....	1,163,244	1,162,503	759,794
From Philippine Islands to east coast United States:			
Sugar.....		955,191	579,691
Copra.....		70,312	65,531
Hemp, unmanufactured.....		49,415	15,588
Ores, various.....		214,442	26,650
All other commodities.....		223,530	231,477
Total this trade route.....		1,512,890	918,937
From Asia to east coast United States:			
Tea.....	28,503	27,966	8,678
Flour, wheat.....		134,701	166
Bags and bagging.....	112,366	58	310
Jute, unmanufactured.....	90,856	96	32
Copra.....	29,312	35	
Vegetable oils.....	20,946	105,810	27,306
Rubber, raw.....	20,809	743,827	20,615
Textiles.....	12,245	21,358	16,843
Skins and hides.....	11,989	6,148	1,087
Hemp, unmanufactured.....	3,216	61,996	1,598
Ores, various.....	276,492	160,112	6,198
Tin, metal.....		88,145	2,002
All other commodities.....	64,931	290,026	195,758
Total this trade route.....	671,665	1,640,278	280,593
From Asia to Europe:			
Nuts, edible.....	20,803		1,138
Tea.....	18,659		870
Canned fish.....			50,364
Oilseeds.....	16,647		2,752
Soya beans.....			224,621
All other commodities.....	43,626		83,303
Total this trade route.....	99,735		363,048
From east coast South America to east coast United States:			
Ores, various.....	44,696		
Wool.....	22,576		
Skins and hides.....	21,116		
Canned meats.....	22,277		
Extract, quebracho.....	28,499		
All other commodities.....	37,574		
Total this trade route.....	176,738		
From east coast South America to Europe:			
Refrigerated meats.....	58,088		
Canned meats.....	28,847		
All other commodities.....	32,293		
Total this trade route.....	119,228		
From Africa to east coast United States:			
Sisal fibre.....	15,247		
Lumber.....	13,700		
Ores, various.....	173,083		
All other commodities.....	35,926		
Total this trade route.....	237,956		

ORIGIN AND DESTINATION OF CARGO

The following tables show the origin and destination, by principal trade areas, of the cargoes carried by vessels passing through the Canal during the past fiscal year; one covers the movement of cargo from the Atlantic to the Pacific and the other from the Pacific to the Atlantic:

Origin and destination of cargo through the Panama Canal from Atlantic to Pacific during fiscal year 1943, segregated by countries in principal trade areas

From—	To North America				To South America								Australasia		
	United States	Central America-Mexico	Balboa, C. Z. ¹	Total	Chile	Colom-bia	Ecuador	Peru	Brazil ²	Uruguay ²	Argen-tina	South America ³	Total	Aus-tralia	New Zealand
North America:															
United States:															
North Atlantic ports	Tons		Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
South Atlantic ports	573		573	573	28,132	1,633	950	5,815	13,654	31,228	9,402	6,500	97,314	129,922	77,325
Gulf ports		6,563	47,211	53,774	107,352	12,090	21,342	37,387				4,983	183,154	29,926	22,117
Total, United States		6,563	47,784	54,347	135,484	13,723	22,292	43,202	13,654	31,228	9,402	11,483	280,468	159,848	99,442
Canada															
Central America-Mexico		2,979	550	3,529										72	30,159
Cristobal, C. Z. ¹		8,842	3,093	20,220	473	4,245	1,547	164	426	49	37	57	569	2,888	
West Indies	8,285	16,324	459,083	475,407	11,518	165		214		763	1,884	179	6,734		
Total, North America	8,285	34,708	510,510	553,503	147,475	18,133	23,839	43,580	14,080	32,022	11,449	11,719	302,297	184,224	129,601
British Isles															
South America					23,030	4,433	2,101	13,270		7,200			50,034	184,878	131,670
Grand total			10,060	10,060	37	463	126				124		750		
Percent of total westbound cargo	8,285	34,708	520,570	563,563	170,542	23,029	26,066	56,850	14,080	39,222	11,573	11,719	353,081	369,102	261,271
	0.2	0.7	10.5	11.4	3.4	0.5	0.6	1.1	0.3	0.8	0.2	0.2	7.1	7.5	5.2

Footnotes at end of table, p. 22.

Origin and destination of cargo through the Panama Canal from Atlantic to Pacific during fiscal year 1943, segregated by countries in principal trade areas—Continued

From—	Total Aus- tralasia	To Africa						To Asia				Un- known Pacific area	Grand Total	Percent of total west- bound cargo
		British South Africa	Portu- guese East Africa	British East Africa	Egypt	Africa ³	Total	Russia	India	Persian Gulf	Asia ³	Total		
North America:														
United States:	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
North Atlantic ports.....	207,247	137,211	11,876	12,305	370,017	---	531,409	73,085	237,704	876,189	130,827	1,317,805	2,742,679	55.5
South Atlantic ports.....	---	16,873	---	---	7,811	---	24,684	---	46,938	16,871	---	63,829	102,086	2.1
Gulf ports.....	52,043	58,732	13,738	---	255,413	---	327,883	---	57,839	37,393	16,522	111,754	797,284	16.1
Total, United States.....	259,290	212,816	25,614	12,305	633,241	---	883,976	73,085	342,501	930,453	147,349	1,493,388	3,642,049	73.7
Canada.....	33,047	1,522	---	---	14,565	---	16,087	---	37,912	435	---	38,347	95,788	1.9
Central America-Mexico.....	---	---	---	---	---	---	---	---	---	---	---	---	4,098	.1
Cristobal, C. Z.....	---	---	---	---	---	---	---	---	---	---	---	---	46,489	.9
West Indies.....	21,488	116,375	---	---	11,248	7,631	135,254	13,368	---	---	---	13,368	745,975	15.1
Total, North America.....	313,825	330,713	25,614	12,305	659,054	7,631	1,085,317	86,453	380,413	930,888	147,349	1,545,103	4,534,399	91.7
British Isles.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---
South America.....	316,548	3,008	---	---	---	---	3,008	15,870	10,318	---	---	26,188	400,058	8.1
Grand total.....	630,373	333,721	25,614	12,305	659,054	7,631	1,098,325	102,323	390,731	930,888	147,349	1,571,291	4,945,267	100.0
Percent of total west-bound cargo.....	12.7	6.7	0.5	0.2	13.4	0.2	21.0	2.1	7.9	18.8	3.0	31.8	100.0	---

¹ Includes both local and transit cargo.

² Via Magellan.

³ Cargo not routed so as to allow segregation between definite countries.

From—	To United States				To other North America				Total North America	British Isles	South America	Un- known Atlantic area	Total	Percent of total east- bound cargo	
	North Atlantic ports	South Atlantic ports	Gulf Ports	Total	Canada	Central Amer- ica-Mex- ico	Cristo- bal, C. Z. ²	West Indies							
North America:															
United States:															
Canada.....	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	7.5
Bahboa, C. Z. ¹		17, 103	17, 103	17, 103		142, 287	81, 388	240, 778	163, 899	718, 468		20, 169	424, 846	12.8	
Central America-Mexico.....	4, 366	3	3, 000	7, 366		12, 615	5, 060	12, 618					12, 618	.2	
Hawaiian Islands.....	29, 547	33, 234	30, 647	93, 428		834	7, 128	15, 338					15, 338	.3	
Total, North America.....	33, 913	33, 234	50, 753	117, 900		834	162, 030	367, 212	882, 367		20, 169	1, 269, 748	22.5		
South America:															
Chile.....	612, 296	180, 808	263, 998	1, 057, 102		2, 423	4, 176	35, 882	1, 099, 583	36, 397	688	18, 368	1, 155, 036	20.4	
Colombia.....	84, 989		7, 346	92, 335			21, 320	20	113, 675		1, 120		114, 795	2.0	
Ecuador.....	20, 851	249	11, 239	32, 339		555	32, 225	27, 168	92, 287		5, 469	11, 393	109, 149	1.9	
Peru.....	98, 191	10	12, 895	111, 096			8, 778	1, 622	121, 456	56, 829		32, 619	210, 944	3.7	
Brazil ²	12, 460			12, 460					12, 460	1, 849			14, 309	.3	
Uruguay ²	76, 198			76, 198				18	76, 216	19, 058	65		95, 339	1.7	
Argentina ²	88, 080			88, 080			740	6, 491	94, 571	98, 321	3, 968		196, 800	3.5	
South America ¹	993, 065	181, 067	307, 101	1, 481, 293		2, 978	67, 239	71, 201	1, 622, 711	212, 454	11, 310	62, 521	1, 908, 996	33.7	
Total, South America.....															
Australasia:															
Australia.....	155, 363	3, 035	4, 795	163, 193	3, 911				167, 104	575, 918		82	743, 104	13.1	
New Zealand.....	14, 278	111		14, 389	1, 217			338	15, 944	587, 326			603, 270	10.7	
Australasia (other).....	41, 692	7, 744		52, 436	4, 000				56, 436			1, 007	57, 443	1.0	
Total, Australasia.....	214, 333	10, 890	4, 795	230, 018	9, 128			338	239, 484	1, 163, 244		1, 089	1, 403, 817	24.8	
Asia:															
India.....	612, 806	42, 766		655, 572	11, 480				667, 052	97, 449			764, 501	13.5	
Persian Gulf area.....	7, 643			7, 643					7, 643				7, 643	.1	
Asia (other) ³	8, 430			8, 430					8, 430	2, 286			10, 736	.2	
Total, Asia.....	628, 899	42, 766		671, 665	11, 480				683, 145	99, 735			782, 880	13.8	
Africa:															
British South Africa.....	69, 395			69, 395	1, 003				70, 398	12, 070			82, 468	1.4	
Portuguese East Africa.....	155, 067			155, 067					155, 067	5, 150		7, 575	167, 792	3.0	
French West Africa.....										8, 200			8, 200	.2	
Egypt.....	10, 939			10, 939					10, 939	7, 804		1, 500	20, 243	.4	
Africa ³	2, 585			2, 585					2, 555				2, 555	.....
Total, Africa.....	237, 956			237, 956	1, 003				238, 959	33, 224		9, 075	281, 258	5.0	
Unknown Pacific area.....															
Grand total.....	2, 108, 106	287, 957	362, 709	2, 738, 832	21, 611	3, 812	229, 269	157, 987	3, 151, 511	2, 391, 024	11, 310	100, 854	5, 634, 699	100.0	
Percent of total east-bound cargo.....	37.3	4.7	6.4	48.4	0.4	0.1	4.0	2.8	55.7	42.3	0.2	1.8	100.0	.....

¹ Includes both local and transit cargo.² Via Magellan.³ Cargo not routed so as to allow segregation between definite countries.

General cargo ships, laden:									
Number of transits	298	271	569	344	458	802	642	729	1,371
Panama Canal net tonnage	1,486,123	1,350,701	2,836,824	1,316,061	1,844,473	3,161,134	2,802,784	3,195,174	5,997,958
Tolls	\$1,337,511	\$1,214,706	\$2,552,217	\$1,184,995	\$1,660,026	\$2,845,021	\$2,522,506	\$2,874,732	\$5,397,238
Cargo (tons)	2,152,401	2,248,007	4,400,408	1,566,446	2,601,344	4,107,790	3,718,847	4,849,351	8,508,198
General cargo ships, ballast:									
Number of transits	2	56	58	50	9	59	52	65	117
Panama Canal net tonnage	3,964	283,122	287,086	41,943	20,174	62,117	45,907	303,296	349,203
Tolls	\$2,854	\$203,848	\$206,702	\$30,199	\$14,625	\$44,724	\$33,053	\$218,373	\$251,426
OTHER TYPE SHIPS									
Naval vessels:									
Number of transits				1	26	27	1	26	27
Displacement tonnage				29,400	143,540	172,940	29,400	143,540	172,940
Tolls				\$14,700	\$71,770	\$86,470	\$14,700	\$71,770	\$86,470
Dredges:									
Number of transits		1	1					1	1
Displacement tonnage		1,296	1,296					1,296	1,296
Tolls		\$648	\$648					\$648	\$648
SUMMARY									
Total cargo and cargo-passenger ships, laden:									
Number of transits	344	300	644	423	538	961	767	838	1,605
Panama Canal net tonnage	1,785,803	1,523,192	3,308,995	1,787,981	2,358,647	4,146,628	3,573,784	3,881,539	7,455,623
Tolls	\$1,697,223	\$1,369,948	\$2,977,171	\$1,009,183	\$2,122,783	\$3,731,966	\$3,216,406	\$3,492,731	\$6,709,137
Cargo (tons)	2,715,602	2,494,738	5,210,340	2,229,665	3,159,961	5,389,626	4,945,267	5,654,039	10,594,966
Total cargo and cargo-passenger ships, ballast:									
Number of transits	5	105	110	51	28	79	56	133	189
Panama Canal net tonnage	18,220	583,713	601,933	45,588	130,855	176,443	63,808	714,568	778,376
Tolls	\$13,118	\$420,274	\$433,392	\$32,823	\$94,215	\$127,038	\$45,941	\$514,489	\$560,430
Total other type ships:									
Number of transits		1	1	1	26	27	1	27	28
Displacement tonnage		1,296	1,296	29,400	143,540	172,940	29,400	144,836	174,236
Tolls		\$648	\$648	\$14,700	\$71,770	\$86,470	\$14,700	\$72,418	\$87,118
Grand total ships:									
Number of transits	349	406	755	475	592	1,067	824	995	1,822
Panama Canal net tonnage	1,804,623	2,106,905	3,910,928	1,833,569	2,480,902	4,323,071	3,637,592	4,596,407	8,233,069
Displacement tonnage		1,296	1,296	29,400	143,540	172,940	29,400	144,836	174,236
Tolls	\$1,620,341	\$1,790,870	\$3,411,211	\$1,056,706	\$2,288,768	\$3,943,474	\$3,277,047	\$4,079,638	\$7,356,685
Cargo (tons)	2,715,602	2,494,738	5,210,340	2,229,665	3,159,961	5,389,626	4,945,267	5,654,039	10,594,966

LADEN AND BALLAST TRAFFIC BY NATIONALITY

In the table below the ships of each nationality have been segregated to show separate statistics on vessels which were carrying cargo and/or passengers at the time of transiting the Canal and those which transited in ballast:

Nationality	Laden			Ballast		
	Number of transits	Panama Canal net tonnage	Tolls	Number of transits	Panama Canal net tonnage	Tolls
Argentine	5	18, 012	\$16, 210. 80			
Belgian	1	7, 495	6, 745. 50	1	7, 495	\$5, 396. 40
British	462	2, 709, 113	2, 438, 201. 70	8	43, 885	31, 597. 20
Chilean	81	251, 237	226, 113. 30			
Greek	9	31, 522	31, 069. 80			
Honduran	8	19, 331	17, 397. 90	5	12, 655	9, 111. 60
Netherland	179	364, 269	327, 842. 10	41	34, 650	24, 948. 00
Norwegian	103	469, 015	422, 113. 50	10	49, 188	35, 415. 36
Panamanian	54	122, 521	110, 268. 90	11	28, 570	20, 570. 40
Peruvian	1	2, 161	1, 944. 90			
Philippine	3	14, 455	13, 009. 50			
Soviet	37	73, 639	66, 275. 10			
Swedish	4	15, 009	13, 508. 10			
United States	644	3, 308, 995	2, 977, 171. 02	110	601, 933	433, 391. 76
Uruguayan	3	10, 666	9, 599. 40			
Yugoslav	11	35, 183	31, 664. 70			
Total, 1943	1, 605	7, 455, 623	6, 709, 136. 22	189	778, 376	560, 430. 72
Total, 1942	2, 347	9, 854, 075	8, 868, 667. 50	312	1, 155, 929	832, 268. 88
Total, 1941	4, 100	18, 226, 182	16, 403, 663. 80	616	2, 416, 554	1, 739, 918. 88

AVERAGE TONNAGE, TOLLS, AND TONS OF CARGO PER CARGO-CARRYING VESSEL

The average measurement tonnage, tolls, and tons of cargo per cargo-carrying vessel of 300 net tons and over, Panama Canal measurement, transiting the Panama Canal during the past 3 years are shown in the following tabulation:

	Fiscal year		
	1943	1942	1941
Measured tonnage:			
Panama Canal net	4, 590	4, 142	4, 385
Registered gross	6, 061	5, 553	5, 703
Registered net	3, 667	3, 289	3, 402
Tolls	\$4, 052	\$3, 650	\$3, 854
Tons of cargo (including vessels in ballast)	5, 909	5, 119	5, 304
Tons of cargo (laden vessels only)	6, 604	5, 798	6, 090

STEAM, MOTOR, AND OTHER VESSELS

The following table shows ocean-going commercial vessels transiting the Canal during each of the past 4 fiscal years, segregated according to the method of propulsion:

	1943	1942	1941	1940
Steamers:				
Oil burning	878	1, 254	2, 601	2, 567
Coal burning	301	332	325	637
Motorships	613	1, 065	1, 777	2, 135
Miscellaneous	30	37	24	31
Total	1, 822	2, 688	4, 727	5, 370

FREQUENCY OF TRANSITS OF VESSELS THROUGH THE PANAMA CANAL

During the fiscal year 1943, 1,175 individual ocean-going commercial vessels, representing 17 nationalities, passed through the Panama Canal. In the aggregate these vessels made a total of 1,822 transits. The number of transits made by individual ships varied from 1 to 39 and averaged 1.55. The greatest number, 39, was made by the Netherland steamer *Karpo*, plying between Cristobal and the west coast of South America.

The United States was first in the number of individual vessels during the year with 578, as well as in the number of transits—755; Great Britain was second in both individual vessels and transits with 360 and 491, respectively.

The following table shows the number of individual ships, the frequency of transits per ship, the total number transits for the year, and the average number of transits per individual ship, segregated by nationality:

Vessels making indicated number of transits during fiscal year 1943

Nationality	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Argentine.....	5																	
Belgian.....		1																
British.....	292	38	20	7	1	1												
Chilean.....		1						4	1	2		1						
Greek.....	7	1																
Honduran.....	9	2																
Netherland.....	25	11	2		1			1										
Norwegian.....	47	9	7	2	1									1				
Panamanian.....	16	10		1			1			2								
Peruvian.....	1																	
Philippine.....	1	1																
Portuguese.....	1																	
Soviet.....	42																	
Swedish.....	2	1																
United States.....	453	98	17	6		1	1	1		1								
Uruguayan.....	1	1																
Yugoslav.....	7	2																
Total, 1943.....	909	176	46	16	3	3	2	6	3	3		1		1				
Total, 1942.....	458	202	103	85	36	27	5	11	5	5	5	4	1	5	3			
Total, 1941.....	350	309	146	165	77	56	42	28	32	6	7	5		2	3	3	7	6

Nationality	19	21	24	25	26	27	28	29	32	33	34	36	37	39	44	Total ships	Total transits	Transits per ship
Argentine.....																5	5	1.00
Belgian.....																1	2	2.00
British.....			1													360	491	1.36
Chilean.....																10	81	8.10
Greek.....																8	9	1.12
Honduran.....																11	13	1.18
Netherland.....						1	1	1			1			1		45	223	4.96
Norwegian.....																67	113	1.69
Panamanian.....																30	65	2.17
Peruvian.....																1	1	1.00
Philippine.....																2	3	1.50
Portuguese.....																1	1	1.00
Soviet.....																42	42	1.00
Swedish.....																3	4	1.33
United States.....																578	755	1.31
Uruguayan.....																2	3	1.50
Yugoslav.....																9	11	1.22
Total, 1943.....			1			1	1	1		1				1		1,175	1,822	1.55
Total, 1942.....	1		2						3	1		2	2		1	967	2,688	2.78
Total, 1941.....	3	1	3	2	1	1	2			1	1		1		11	1,263	4,727	3.74

¹ Includes also 2 vessels making 43 and 89 transits, respectively.

The following tabulation taken from the preceding table shows for the fiscal year 1943 the number of vessels making a given number of transits through the Panama Canal (from 1 to 39), their aggregate number of transits, and their percent of the total ocean-going commercial transits (1822):

Number of transits	Number of vessels	Total number of transits	Percent of total Canal transits (1,822)	Number of transits	Number of vessels	Total number of transits	Percent of total Canal transits (1,822)
1	909	909	49.9	12	1	12	.7
2	176	352	19.3	14	1	14	.8
3	46	138	7.6	24	1	24	1.3
4	16	64	3.5	27	1	27	1.5
5	3	15	.8	28	1	28	1.5
6	3	18	1.0	29	1	29	1.6
7	2	14	.8	34	1	34	1.9
8	6	48	2.6	39	1	39	2.1
9	3	27	1.5				
10	3	30	1.6	Total	1,175	1,822	100.0

GROSS TONNAGE OF VESSELS

The 1,822 ocean-going commercial vessels which transited the Canal in the fiscal year 1943 included 1,792 merchant vessels, and 2 cable repair ships, paying tolls on the basis of net tonnage, and 28 vessels paying tolls on the basis of displacement tonnage. Of the 1,794 vessels paying on net tonnage, 822 were vessels of from 6,000 to 8,000 registered gross tons, this representing the most general size of vessel to transit the Canal. The average registered gross tonnage of all vessels paying tolls on a basis of Panama Canal net tonnage in the fiscal year 1943 was 6,061 as compared with 5,555 for the fiscal year 1942, representing an increase in size of 9.1 percent.

The following tabulation shows the ocean-going commercial vessels, excluding those paying tolls on displacement tonnage, in groups according to registered gross tonnage, segregated by nationality, with average tonnages for 1943 and 1942 and group percentages for the fiscal year 1943:

Segregation of transits by registered gross tonnage of vessels, fiscal year 1943

	Under 2,000	2,000 to 3,999 inclusive	4,000 to 5,999 inclusive	6,000 to 7,999 inclusive	8,000 to 9,999 inclusive	10,000 to 11,999 inclusive	12,000 to 13,999 inclusive	14,000 to 15,999 inclusive	16,000 to 17,999 inclusive	20,000 and over ¹	Total ²	Registered gross tonnage	Average registered gross tonnage per vessel	
													Fiscal year	1943	1942
Argentina.....		2	1	1							5	21,439	4,288	3,525
Belgian.....											2	21,136	10,568	
British.....	32	1	68	173	111	46	27	4	2	6	470	3,677,018	7,823	8,096
Chilean.....	33	16		32							81	332,382	4,103	4,484
Colombian.....														565
Finnish.....														1,854
Greek.....		4	5								9	37,351	4,150	3,492
Honduran.....	1	8	2	2							13	50,949	3,919	2,910
Japanese.....														7,426
Mexican.....														7,884
Netherlands.....	162	15	5	17	19	5					223	475,304	2,131	2,876
Nicaraguan.....														1,110
Norwegian.....	15	3	63	17	14	1					113	597,104	5,284	4,905
Panamanian.....	30	15	13	5	2						65	194,638	2,994	2,608
Peruvian.....		1									1	3,090	3,090	2,319
Philippine.....			3								3	15,951	5,317	4,709
Portuguese.....														5,827
Soviet.....	4	31	1	1							37	104,719	2,830	4,717
Swedish.....		2	2								4	17,048	4,262	10,313
United States.....	2	18	99	574	27	27	5	1		1	754	5,273,716	6,994	6,497
Uruguayan.....		3									3	11,290	3,763	
Yugoslav.....	1	6	4								11	40,615	3,692	3,424
Total.....	280	126	266	822	173	81	32	5	2	7	1,794	10,873,750	6,061	5,555
Percent of total.....	15.6	7.0	14.9	45.8	9.6	4.5	1.8	0.3	0.1	0.4	100.0			

¹ This group includes the following: British, *Dominion Monarch*, 27,155 tons (2 transits); *Capdown Castle*, 27,000 tons (2 transits); *Athlone Castle*, 25,564 tons; *Stirling Castle*, 25,550 tons; and United States, *Uruguay*, 20,183 tons.

² 23 vessels paying on displacement—21 British, 1 Portuguese, 1 United States, and 5 Soviet—are not included.

CANAL OPERATION AND MAINTENANCE

HOURS OF OPERATION

Dispatching of ships through the Canal is conducted on schedules. Vessels awaiting transit begin moving through the Canal from the terminal ports at 6 a. m. and dispatches are made thereafter from each terminus at intervals of 1 hour. The following is a summary of normal arrangements in effect at the end of the fiscal year.

From Cristobal Harbor, first ship at 6 a. m., last at about 3 p. m.; from Balboa anchorage, first ship at 6 a. m., last at 2:30 p. m. Variations often occur in these schedules due to wartime emergencies.

Tankers and vessels carrying hazardous cargoes are dispatched at the discretion of the port captain and normally are not permitted to proceed unless they can clear the locks before dark. Numerous exceptions are made in these cases in order to avoid delaying war cargoes.

Special precautions and regulations for handling ships in the locks were continued throughout the year.

NORMAL OPERATING SCHEDULE OF LOCKS

Gatun:

- 7 a. m. to 3 p. m.—8 locomotives.
- 9:30 a. m. to 5:30 p. m.—6 locomotives.
- 3 p. m. to 11 p. m.—8 locomotives.

Pedro Miguel—July 1 to August 2:

- 8 a. m. to 4 p. m.—8 locomotives.
- 4 p. m. to 12 m. n.—8 locomotives.
- 12 m. n. to 8 a. m.—6 locomotives.

Pedro Miguel—August 3 to June 30:

- 8 a. m. to 4 p. m.—8 locomotives.
- 4 p. m. to 12 m. n.—8 locomotives.

Miraflores:¹

- 7 a. m. to 3 p. m.—8 locomotives.
- 9 a. m. to 5 p. m.—8 locomotives.
- 5 p. m. to 1 a. m.—8 locomotives.

At times it is necessary to extend the schedules by overtime work at night on account of war requirements.

LOCKAGES AND LOCK MAINTENANCE

LOCKAGES

Lockages and the number of vessels handled (including Panama Canal equipment) are shown in the following table by months for the past fiscal year, with corresponding totals for the past 5 years:

¹ Effective February 7, 1943, two 8-locomotive crews only were scheduled to work on Sundays and holidays—No. 1 crew from 7 a. m. to 3 p. m., and No. 2 crew from 3 p. m. to 11 p. m.

Month	Gatun		Pedro Miguel		Mirafleres		Total	
	Lockages	Vessels	Lockages	Vessels	Lockages	Vessels	Lockages	Vessels
<i>1942</i>								
July.....	205	362	393	868	266	413	864	1,643
August.....	205	375	271	449	252	399	728	1,223
September.....	206	351	270	451	255	419	731	1,221
October.....	229	429	301	521	286	495	816	1,445
November.....	225	455	281	460	274	425	780	1,340
December.....	263	497	321	542	308	533	892	1,572
<i>1943</i>								
January.....	247	463	274	496	274	505	795	1,464
February.....	226	448	262	496	252	508	740	1,452
March.....	220	448	295	534	291	523	806	1,505
April.....	247	426	343	664	300	507	890	1,597
May.....	264	500	327	625	322	633	913	1,758
June.....	259	482	323	566	315	574	897	1,622
Total.....	2,796	5,236	3,661	6,672	3,395	5,934	9,852	17,842
Fiscal year:								
1942.....	4,669	10,986	4,445	8,084	3,775	5,806	12,889	24,876
1941.....	5,103	8,018	5,018	7,489	4,943	7,410	15,064	22,917
1940.....	5,302	7,713	5,392	7,643	5,286	7,570	15,980	22,926
1939.....	6,054	7,929	6,283	8,064	6,221	7,988	18,558	23,931
1938.....	5,651	7,385	5,870	7,420	5,813	7,316	17,334	22,121

The average number of lockages made daily, and the average number of vessels handled per lockage, during each of the past 5 fiscal years, are shown in the following table.

Fiscal year	Average number of lockages per day			Average number of vessels per lockage		
	Gatun	Pedro Miguel	Mirafleres	Gatun	Pedro Miguel	Mirafleres
1943.....	7.7	10.0	9.3	1.87	1.82	1.75
1942.....	12.8	12.1	10.3	2.35	1.82	1.54
1941.....	14.0	13.7	13.6	1.57	1.49	1.50
1940.....	14.5	14.8	14.5	1.45	1.41	1.42
1939.....	16.6	17.2	17.0	1.31	1.28	1.28

DELAYS TO SHIPPING

The lock-operating machinery functioned smoothly throughout the year except for a few incidents due to faulty operation or minor failure of equipment. The following summary includes all delays to vessels while transiting the locks due to the incidents mentioned:

	Number of lockages delayed	Aggregate delay caused all vessels
Gatun.....	12	7 hours 01 minute
Pedro Miguel.....	22	11 hours 18 minutes
Mirafleres.....	28	7 hours 05 minutes
Total.....	62	25 hours 24 minutes

MAINTENANCE AND CONSTRUCTION

Locks machinery and equipment were kept in good operating condition throughout the year by a rigid program of regular maintenance. The partial overhaul of valves, gates, and other underwater machinery

which was started at the Miraflores locks in April 1942 was completed in September. Work was started in October and completed in January on a partial overhaul of Gatun locks which in the main consisted of removing and repairing one of the gates which had developed a loose pintle casting, and general repairs to six rising stem valves. General repairs to gates and valves were performed on the Pedro Miguel locks. Special construction work on all locks was carried forward during the year by the municipal, mechanical, and electrical divisions as well as by the regular forces employed in altering, relocating, and protecting operating machinery and equipment.

POWER FOR CANAL OPERATION

The power system was operated throughout the fiscal year 1943 with a combined generator output of 220,103,351 kilowatt-hours as compared with the combined generator output of 191,381,561 kilowatt-hours for the preceding fiscal year. During the year 198,433,204 kilowatt-hours were distributed to consumers as compared with 170,841,436 kilowatt-hours in the fiscal year 1942. From the above there resulted a transmission loss of 21,670,147 kilowatt-hours, or 9.8 percent, as compared with 20,540,125 kilowatt-hours, or 10.7 percent, for the preceding year. The maximum peak load carried on the system during the fiscal year 1943 was 39,800 kilowatts, occurring on June 14 and on June 21.

The Madden hydroelectric station and the Gatun hydroelectric station operated throughout the year, generating 63.6 and 35.8 percent, respectively, of the total power output, while stand-by Diesel-electric stations generated the remaining 0.6 percent during the year. The Miraflores Diesel-electric station furnished more than ordinary stand-by service during the year on account of outages of hydraulic equipment at both Gatun and Madden power stations, the total hours of engine operation being 1,335, compared to 418 hours for last year. The Gatun, Mount Hope, and Balboa Diesel-electric stations were maintained as stand-by emergency stations during the year. A relatively small output was generated at these stations during "alert" conditions, but the greater portion of their output was for initial and subsequent test loads.

The new Gatun two-engine Diesel-electric station was placed in operation on August 21, 1942. Work was carried forward during the year on the installation of the fourth unit for the Miraflores Diesel-electric station, the contract for the manufacture of which was negotiated during the latter part of 1942. At the end of 1943, this project was 70 percent complete. Work in connection with the installation of the third 10,000 kilovolt-ampere turbine-driven gen-

erating unit for Madden hydroelectric station was completed during the year, the initial operation of which occurred on December 15, 1942.

There were 43 interruptions to transmission line service during the year. Of these 43 interruptions, 15 were caused by barrage balloon cables contacting line, 4 were from construction equipment contacting line, 4 were from insulator flashover caused by lightning, 2 were from animal contacts, and 1 each was from falling aerial barrage curtain, deteriorated ground wire contact, auto-transformer failure, personnel contact, and operating error; the causes of the other 13 were undetermined.

WATER SUPPLY AND GENERAL WEATHER CONDITIONS

WATER SUPPLY

The water requirements of the Panama Canal for hydroelectric power, lockage water, and municipal use are supplied by Madden and Gatun Lakes which together drain an area of 1,289 square miles. Water spilled from Madden Lake or drawn for use of Madden hydroelectric station flows into Gatun Lake and remains available for Gatun Lake uses. The total inflow of water from Madden and Gatun drainage basins during the year ended June 30, 1943, and the expenditure of this water are itemized in the following table. Similar values for the preceding year are also given:

	Million cubic feet year ended June 30		Percent of available water supply year ended June 30	
	1943	1942	1943	1942
WATER SUPPLY				
Inflow from Madden basin.....	81,880	90,940		
Evaporation from Madden Lake.....	2,280	2,270		
Net yield available for Madden Lake uses.....	79,600	88,670		
Inflow downstream from Madden Dam.....	144,962	103,405		
Subtotal.....	224,562	192,075		
Evaporation from Gatun Lake.....	17,702	18,629		
Net yield available for Gatun Lake uses.....	206,860	173,446		
MADDEN LAKE—WATER USES AND EXPENDITURES				
Madden hydroelectric power.....	52,663	51,214	66.2	57.8
Madden Dam spillage and leakage.....	28,106	34,177	35.3	38.5
Change in Madden Lake storage.....	-1,169	3,279	-1.5	3.7
Total Madden Dam expenditures.....	79,600	88,670	100.0	100.0
GATUN LAKE—WATER USES AND EXPENDITURES				
Gatun hydroelectric power.....	57,752	53,422	27.9	30.8
Gatun Lake lockages.....	22,729	32,587	11.0	18.8
Municipal, leakage, and miscellaneous.....	3,689	2,594	1.8	1.5
Total Gatun Lake uses.....	84,170	88,603	40.7	51.1
Gatun spillway discharge.....	124,590	77,145	60.2	44.5
Increase in Madden and Gatun Lake storage.....	-1,190	7,698	-.9	4.4
Total Gatun Lake uses and expenditures.....	206,860	173,446	100.0	100.0

The 1943 yield was 226.84 billion cubic feet, representing an average inflow of 7,193 cubic feet per second, and is 9 percent below the 29-year annual average.

FLOODS

The only approach to a general storm during the 12-month period ended June 30, 1943, was the heavy rain of December 17-22. Most of the run-off came from the lower part of Gatun drainage basin near the Atlantic coast, and the storm did not extend upstream with equal intensity. The storm presented no flood problems. Six gates were opened at the Gatun spillway on December 18 and 19 with a maximum discharge of 74,460 cubic feet per second, the greatest during the year. The maximum discharge at Madden Dam during the fiscal year 1943 was 21,400 cubic feet per second on June 19th.

DRY SEASON, 1943

The period of the 1943 dry season in which the flow into Madden and Gatun Lakes was not sufficient to supply Panama Canal water requirements extended from January 16 to April 30, a period of 105 days. This was one of the shortest dry season periods in the past 30 years. The total yield of Gatun Basin during this 105-day period amounted to 17,118 million cubic feet. Of this amount 7,582 million cubic feet were lost by evaporation from Madden and Gatun Lake surfaces, leaving a net yield of 9,536 million cubic feet available for Panama Canal uses. It was necessary to draw 15,091 million cubic feet of water from reserve storage in Madden and Gatun Lakes to meet dry season water requirements. Madden Lake supplied 6,097 million cubic feet and was lowered 12.17 feet. Gatun Lake supplied 8,994 million cubic feet additional water and was lowered 1.96 feet.

LAKE ELEVATIONS

During the fiscal year ended June 30, 1943, Madden Lake varied in elevation between a maximum of 251.40 feet on December 22 and a minimum of 237.81 feet on May 29, a range of 13.59 feet. Gatun Lake varied in elevation between a maximum of 86.65 feet on December 29 and 30 and a minimum of 84.51 feet on April 25 and 26, a range of 2.14 feet.

PRECIPITATION

Rainfall in the Canal Zone during the calendar year 1942 averaged above normal but on account of the local character of most of the rains there is considerable variation in the annual totals. Along the line of the Canal annual totals ranged from 69.95 inches at Balboa, the Pacific terminal of the Canal to 159.09 inches at Cristobal, the Atlantic terminal. Less than one-tenth of the year's total fell during the 4-month

dry season January to April, inclusive, and more than nine-tenths fell during the 8-month rainy season May to December, inclusive. February was the month of the least rainfall with monthly totals ranging from 0.10 to 2.80 inches. October was the month of the greatest rainfall with monthly totals ranging from 7.90 to 34.03 inches. The greatest 24-hour rainfall during the year was 10.28 inches at Gatun on December 18 and 19.

AIR TEMPERATURE

Air temperatures in the Canal Zone for the calendar year 1942 averaged slightly above normal but the excess was not as great as in the preceding year. Monthly means at Balboa on the Pacific coast ranged from 77.6° F. in November to 81.3° F. in March, with an annual mean of 79.4° F. Monthly means at Cristobal on the Atlantic coast ranged from 78.9° F. in October to 82.0° F. in March, with an annual mean of 80.8° F. The annual means and extremes at Canal Zone stations are given in the following table:

Station	1942 maximum		1942 minimum		1942 mean (°F.)	Departure (°F.)
	°F.	Date	°F.	Date		
Balboa Heights.....	95	Feb. 26	70	Jan. 7	79.4	+0.6
Madden Dam.....	96	Feb. 24	66	Feb. 24	78.3	+ .8
Cristobal.....	93	Aug. 25	72	Sept. 27	80.8	+ .7

It is of interest that the maximum and minimum temperatures for the year at Madden Dam occurred on the same day—February 24. The weather that day was characterized by a break in the trade winds, a cloudless sky and low humidity. The absolute maximum and minimum temperatures on record at the above stations and the long period annual averages are as follows:

Station	Record (years)	Absolute maximum		Absolute minimum		Annual mean (° F.)
		° F.	Date	° F.	Date	
Balboa Heights.....	37	97	Apr. 7, 1912	63	Jan. 27, 1910	78.8
Madden Dam.....	32	98	Apr. 13, 1920	59	{Feb. 4, 1924 Jan. 30, 1929}	77.5
Cristobal.....	35	95	{Oct. 18, 1924 May 21, 1925}	66	Dec. 3, 1909	80.1

WINDS AND HUMIDITY

Wind velocities in the Canal Zone for the calendar year 1942 were somewhat lower than normal. During the 4-month dry season period January to April, inclusive, the northeast trade winds averaged 12 miles per hour on the Atlantic coast and 8 miles per hour on the Pacific coast. The variable winds of the 8-month rainy season May to

December, inclusive, averaged 6 miles per hour along the Atlantic coast and 5 miles per hour along the Pacific coast. Maximum wind velocities for 5-minute periods were 30 miles per hour from the north on January 23 at Cristobal on the Atlantic coast and 26 miles per hour from the north on March 6 at Balboa Heights on the Pacific coast. Northerly winds predominated on both coasts with the winds at Cristobal blowing off the sea 68 percent of the time and those at Balboa Heights blowing off the land 79 percent of the time. The relative humidity during the calendar year 1942 averaged 83 percent on the Atlantic coast and 85 percent on the Pacific coast. Monthly means on the Atlantic coast ranged from 76 percent in January to 87 percent in October. Monthly means on the Pacific coast ranged from 75 percent in January to 91 percent in October.

TIDES

Absolute tidal ranges during the calendar year 1942 were 2.2 feet on the Atlantic coast and 20.3 feet on the Pacific coast. At Cristobal, the Atlantic terminal of the Canal, the following extremes occurred: Highest high water 1.36 feet above mean sea level on January 14, lowest low water 0.87 foot below mean sea level on December 9, and the greatest range between consecutive tides 1.72 feet on May 31. At Balboa, the Pacific terminal of the Canal, the following extremes occurred: Highest high water 9.6 feet above mean sea level, lowest low water 10.7 feet below mean sea level, and the greatest range between consecutive tides 19.8 feet on May 31.

SEISMOLOGY

Eight earthquake shocks were felt in the Canal Zone during the calendar year 1942, all of which were light with no damage incurred locally. The intensities of these quakes as felt in the Canal Zone were rated at I to III, Modified Mercalli Scale. Distances of the epicenters from Balboa Heights, based on local seismograph records, ranged from 40 to 300 miles. The only shock attaining intensity III occurred at 1:25 a. m., December 22. Two more shocks were felt on the same day. The seismograph records indicated all three shocks as originating about 110 miles from Balboa Heights, but no damage was reported from any part of the Republic of Panama. Only one of the eight shocks felt in the Canal Zone was of sufficient absolute intensity to be included in the United States Coast and Geodetic Survey list of epicenter locations. This shock occurred at about 7:30 a. m., December 26, and was located in latitude 9° north and longitude 75° west, about 300 miles east of the Canal Zone. Press reports stated that more than 10 persons were killed and considerable property damage done near Lorica on the Atlantic coast of Colombia, south of Cartagena. This shock was felt by only a few in the Canal Zone and was rated at intensity I.

MARINE ACTIVITIES

Although there was a further decline from 1942 in the transit of ocean-going commercial vessels, the passage of vessels free of tolls (not reflected in our traffic statistics) increased, resulting in the over-all traffic figure in 1943 being approximately equal to that in 1942. Transit operations continued throughout the year on the basis in effect since 1939, i. e., of having only one of each pair of locks in use at any one time. War time precautions for safeguarding the Canal and vessels in transit continued throughout the year.

Radiotelephone installations on division tugs and launches, which service was augmented during the year, have materially improved operating efficiency in that it eliminates the necessity of the craft returning to base for orders. New loud speaker installations on the three signal stations in Gaillard Cut have facilitated the control of traffic. A fog signal consisting of a light mounted on a mast 178 feet above lake level with fog horn at lower level, being installed at Darien, was 75 percent complete at the end of the year.

HARBOR ACTIVITIES

The table following shows the number of vessels handled at docks of the terminal ports of Cristobal and Balboa for the fiscal year 1943 as compared with the two previous fiscal years:

	Cristobal, fiscal years			Balboa, fiscal years		
	1943	1942	1941	1943	1942	1941
Number of vessels docked:						
Handling passengers and/or cargo.....	639	1,558	2,326	693	646	619
For all other purposes.....	1,404	941	860	1,230	959	737
Total.....	2,043	2,499	3,186	1,923	1,605	1,356

AIDS TO NAVIGATION

On June 30, 1943, there were 742 aids to navigation in service in the Panama Canal and its approaches, maintained by the lighthouse subdivision and classified as follows: Acetylene gas, 107; electric, 326; unlighted, 309. The U. S. S. *Favorite* continued the inspection and servicing, under arrangement with the United States Coast Guard, of the acetylene gas operated lighthouses at Morro Puercos and Jicarita Island in the Pacific approach to the Canal. This vessel also engaged in the establishment of a series of aids to navigation off the Caribbean coasts of Honduras and Nicaragua March 22 to 29, 1943.

ACCIDENTS TO SHIPPING

The board of local inspectors investigated and reported on 35 accidents in connection with shipping in Canal Zone waters during the fiscal year 1943, a summary of which follows with a comparison of accidents in the two previous years:

Cause of accident	Fiscal year		
	1943	1942	1941
Collision...	14	7	1
Ship struck lock wall	7	2	9
Ship grounded	5	6	1
Ship struck dock	1	5	4
Ship struck Canal bank	1	1	4
Ship damaged by tug	1	1	8
Other causes	6	6	7
Total	35	28	34

INSPECTIONS

Inspection was made prior to unloading or transit of all vessels carrying hazardous cargoes. Inspection was made of all floating equipment of The Panama Canal and Panama Railroad Co., and report submitted. Complete inspection was made of the hulls, power plants, and equipment of 11 American and 15 foreign vessels and certificates of seaworthiness issued. Forty-nine hulls of commercial vessels and of Canal and Railroad plant were inspected in dry-dock. Fifty-six steam boilers were given annual inspection and hydrostatic tests. Annual inspection was made and certificate of seaworthiness issued to 220 motorboats.

ADMEASUREMENT

The principal features of interest in admeasurement work during the year were the preponderance of newly constructed ships—Liberty and other types—arriving for initial measurement; excessive peak loads in measurement due to the number of new ships arriving in large convoys; and the large number of corrections and revisions required in Panama Canal tonnage certificates already issued due to structural alterations occasioned by gun crew and magazine installations.

SALVAGE AND TOWING

The U. S. S. *Favorite* was engaged from November 27 to December 2, 1942, in salvage operations which resulted in the floating of the S. S. *Richard D. Spaight* aground in Limon Bay. The *Favorite* also went to the assistance of the S. S. *Daniel Willard* aground off the west

coast of Colombia, proceeding to the stranded vessel, on May 12, 1943, refloating her, and towing her to Balboa, arriving May 18, 1943. On May 5, 1943, the *Favorite* proceeded to the assistance of the S. S. *Abner Doubleday* disabled at sea, returning May 10 with the disabled vessel in tow. The *Favorite* was also engaged from June 4 to 18 in the handling of a tow of barges from the Canal to Costa Rican ports for the Pan American Highway Commission. The *Tavernilla* was dispatched to sea on June 21, 1943, to locate and assist to Cristobal a tug with barges in tow reported as being in distress, and returned to Cristobal with the barges in tow. The *Gorgona* was dispatched to sea on May 14, 1943, to pick up and bring to Balboa the S. S. *Peter E. Crowley*, reported as being disabled about 40 miles from Balboa; the *Gorgona* left Balboa May 14 and returned the following day without sighting the vessel; it later developed that the vessel was able to effect its own repairs and proceed to port without assistance. The *Gorgona* also was engaged from July 16, 1942, to August 3, 1942, in outside towing, including visits to Ecuadorean ports.

DAMAGE TO U. S. "ALHAJUELA"

A very serious marine accident occurred on August 19, 1942, when the Diesel tug *Alhajuela*, operated by the Marine Division of The Panama Canal, was struck by a United States Navy seaplane in Manzanillo Bay. The accident resulted in the death of six marine division employees and of eight Navy personnel. The seaplane was completely demolished, but repairs have been accomplished on the tug and it was returned to service on May 16, 1943.

MAINTENANCE OF CHANNEL—OTHER DREDGING ACTIVITIES

Dredges worked throughout the year dredging and maintaining the Canal channel and terminal harbors from deep water of the Atlantic entrance to deep water in the Pacific, as well as on various special maintenance projects. An important part of the work performed by the dredging equipment of The Panama Canal during the past year was on special improvement projects for the United States Navy. In addition, dredging operations on the wet excavation of the third locks project were continued, although on a lower priority basis.

Excavation during the past year is summarized in the following table:

Location	Earth	Rock	Total
CANAL PRISM DREDGING			
	<i>Cubic yards</i>	<i>Cubic yards</i>	<i>Cubic yards</i>
Gatun Lake, maintenance	46,100		46,100
Gaillard Cut, maintenance:			
Regular	109,050	53,900	162,950
Slides	20,950	73,350	94,300
Gaillard Cut, project No. 13	117,200	109,850	227,050
Pacific entrance, maintenance	659,300	9,300	668,600
Total, Canal prism	952,600	216,400	1,169,000
AUXILIARY DREDGING			
Balboa Harbor:			
Maintenance	46,500	2,000	48,500
Project No. 1, extension No. 3	1,063,600		1,063,600
Cristobal Harbor:			
Naval launch slip and dock facilities	421,700	168,000	592,700
Army dock slip	5,700		5,700
Pipe-line trench	23,300	13,700	37,000
Refloating grounded ship, Limon Bay	15,500		15,500
Trans-Isthmian pipe-line trench	115,900	4,500	120,400
Pipe unloading basin, Gatun Lake	14,000		14,000
Pipe-line trench, Balboa	41,100	20,600	61,700
Naval operating base, Balboa	7,800	68,300	76,100
Drydocks, Balboa		16,400	16,400
Outer anchorage, Pacific entrance	5,473,400	131,200	5,604,600
Naval station, Pacific entrance	137,500		137,500
Chagres River gravel service	440,100		440,100
Total, auxiliary	7,809,100	424,700	8,233,800
THIRD LOCKS DREDGING			
Bypass channels:			
New Gatun locks, north approach	305,800	61,900	367,700
New Miraflores locks, north approach	70,200	90,100	160,300
New Miraflores locks, south approach	201,700	326,400	528,100
Total bypass channels	577,700	478,400	1,056,100
Grand total, fiscal year 1943	9,339,400	1,149,500	10,488,900
Grand total, fiscal year 1942	7,840,720	2,179,500	10,020,220

¹ In addition, 191,320 cubic yards of Chame sand were produced by craneboat *Atlas* in fiscal year 1943 and 261,350 in fiscal year 1942.

Dredging operations are divided into three major districts—the Atlantic section, from contour 42 feet below mean sea level in the Atlantic Ocean to Gatun Locks and Dam; the central section, from Gatun locks to Pedro Miguel locks; and the Pacific section, from Pedro Miguel locks to contour 50 feet below mean sea level in the Pacific Ocean. Total excavation in these three areas, exclusive of third locks excavation, summarized as follows:

	Section			Total
	Atlantic	Central	Pacific	
	<i>Cubic yards</i>	<i>Cubic yards</i>	<i>Cubic yards</i>	<i>Cubic yards</i>
Canal prism:				
Earth.....		293,300	659,300	952,600
Rock.....		237,100	9,300	246,400
Total.....		530,400	668,600	1,199,000
Auxiliary:				
Earth.....	469,200	129,900	6,769,900	7,369,000
Rock.....	181,700	4,500	238,500	424,700
Total.....	650,900	134,400	7,008,400	7,793,700
Total (exclusive of third locks):				
Earth.....	469,200	423,200	7,429,200	8,321,600
Rock.....	181,700	241,600	247,800	671,100
Grand totals:				
Fiscal year 1943.....	650,900	664,800	7,677,000	¹ 8,992,700
Fiscal year 1942.....	14,600		1,206,650	¹ 1,221,250

¹ Does not include Chagres River gravel or Chame sand service.

ORDINARY CHANNEL MAINTENANCE—CANAL PRISM DREDGING

Atlantic section (Atlantic entrance and Cristobal Harbor).—There was no dredging in these areas during the fiscal year 1943.

Central section (Gatun Lake and Gaillard Cut).—Maintenance dredging in the Gatun Lake section of the Canal channel was in progress for a total of 12 days during the year, with the pipe line suction dredge *Mindi* which excavated 46,100 cubic yards of earth. Maintenance dredging in Gaillard Cut (exclusive of slide excavation) was in progress for a total of 58½ days during the year, with the dipper dredge *Gamboa* dredging 162,950 cubic yards.

Pacific section (Pacific entrance, Balboa harbor and Miraflores Lake).—Maintenance dredging in the Pacific entrance of the Canal channel was carried forward a total of 60 days during 1943, with the total material dredged amounting to 668,600 cubic yards. Of this 631,300 cubic yards were dredged by the pipe-line suction dredge *Las Cruces*, working 47 days; the dipper dredge *Cascadas*, working 8 days, excavated a total of 35,800 cubic yards; the dipper dredge *Paraiso* working two-thirds of a day, excavated 1,200 cubic yards in the east ferry slip; and *Derrick Barge No. 157*, equipped with clam-shell bucket, working 4 days, removed 300 cubic yards along the east side of Miraflores locks south approach wall.

AUXILIARY DREDGING—SPECIAL MAINTENANCE PROJECTS

Project No. 1.—Project No. 1 in total was started in 1924 and consists of deepening the Balboa inner harbor and the Pacific entrance channel from Miraflores locks to the sea buoys. Various additions known as projects 1-A and 1-B, Pacific entrance, and extensions

Nos. 1, 2, and 3 to project No. 1, Balboa Harbor, have been subsequently authorized.

Project No. 1-C, Pacific entrance.—This project was approved August 26, 1942, and involves the excavation to elevation—50 feet precise level datum that triangular area lying between the Canal and the New Miraflores locks bypass channel, south approach, and extending from their intersection northward a distance of 4,220 feet to Miraflores south plug on the bypass channel and 4,230 feet along the Canal to station 2125; also that area between the Canal and a line parallel to and 500 feet west of the Canal axis extending northward from Canal Station 2125 (junction of this latter area with the triangular area), a distance of 2,413 feet. The estimated total quantity of material involved in project 1-C is 6,654,000 cubic yards, which when completed will provide anchorage for 11 additional berths. During 1943 shore mining on this project was in progress a total of 201 days during which time 295,400 cubic yards of rock were broken, but none of this material was removed.

Project No. 1, extension No. 3, Balboa Harbor.—This project is located 1,044 to 3,603 feet east of the Canal axis northward from pier 18 in Balboa Harbor, and provides sufficient space for an additional pier with slip, as well as providing area available for additional anchorage. Actual work on this project was inaugurated during August 1942. Two dredges were employed on this work during the year—the dipper dredge *Cascadas* working 6 days excavating 60,400 cubic yards, and the dipper dredge *Paraíso*, working 143½ days excavating 1,003,200 cubic yards.

Project No. 13, Gaillard Cut.—This project, which consists of widening Culebra Reach by 200 feet to the westward, was started in January 1935. During 1943 dredging and shore mining were performed on this project as follows: The dipper dredge *Gamboa* worked 59 days, excavating a total of 227,050 cubic yards; three tractors worked a total of 382½ days, moving 116,600 cubic yards of earth to the top of the bank for sluicing into the Canal prism. Grader No. 4 was stationed at this project for the entire year, being in actual operation 53 days for furnishing water for sluicing operations; a total of 160,400 cubic yards of material were sluiced into the Canal during the year. Shore mining was in progress for the last 4½ months of the year, during which time 392,000 cubic yards of rock were broken.

AUXILIARY DREDGING—OTHER PROJECTS

Details of the more important projects in this category are given below:

Outer anchorage, Pacific entrance.—Dredging operations were carried forward on this project a total of 297 days by the dipper dredges *Cascadas* and *Paraíso* and the two pipe-line dredges *Las Cruces* and

Mindi, with total excavation amounting to 5,604,600 cubic yards. Work accomplished by dredging equipment employed on this work was as follows: The *Cascadas* worked 178 days, removing 1,705,800 cubic yards; the *Paraíso* worked 37½ days, removing 443,500 cubic yards; the *Las Cruces* worked 202 days, removing 3,163,300 cubic yards; and the *Mindi* worked 16 days dredging 292,000 cubic yards. Subaqueous mining was carried forward a total of 87 days by the drillboat *Thor*, during which 46,400 cubic yards of rock were broken.

Naval dock facilities, Cristobal: Derrick Barge No. 157, equipped with a clamshell bucket, worked 7¼ days on a launch landing slip, removing a total of 400 cubic yards, and 112 days in removing sunken and abandoned wrecks from the dredging area near the proposed dock. The drillboat *Thor* worked 8 days on subaqueous mining in the area fronting the proposed dock, and broke 6,100 cubic yards of rock. The pipe-line suction dredge *Mindi* was employed 46 days during the year at the dock area, removing 592,300 cubic yards.

Naval station, Balboa: The pipe-line suction dredge *Las Cruces* worked 7 days on this project—removing a total of 137,500 cubic yards. A rotary drill mounted on the Panama Railroad *Pile Driver No. 201* worked 93 days on this project drilling and blasting to facilitate driving of piles.

Trans-Isthmian Pipe Line and Pipe Unloading Basin, Gatun Lake.—Dredging on the United States Navy's pipe-line trenches and pipe unloading basin in Gatun Lake was performed a total of 111¼ days during the year, employing the dipper dredge *Gamboa* for 33 days, *Derrick Barge No. 157* for 16 days, and *Excavator No. 5* for 63, the latter two pieces of equipment being equipped with clamshell buckets. The total material dredged amounted to 134,400 cubic yards of which 104,500 cubic yards were removed from the pipe-line trench east of Monte Lirio, 15,900 cubic yards from the pipe-line trench at *Gamboa* and 14,000 cubic yards from the pipe unloading basin at *Gamboa*. Subaqueous mining by the drillboat *Terrier No. 2* was in progress 2 days during which time 1,400 cubic yards of rock were broken.

Naval operating base, Balboa.—The dipper dredge *Paraíso* worked 23½ days on this project removing 76,100 cubic yards of material.

Pipe-line trench, Balboa Harbor.—Dredging on this project was carried forward during the year by the dipper dredge, *Cascadas* working 16 days and the dipper dredge *Paraíso* working 20 days, with material dredged totaling 61,700 cubic yards. Subaqueous mining by the drillboat *Vulcan* was in progress on this trench for a total of 103½ days, breaking 19,600 cubic yards of rock. This project required special dredging and mining to a depth of minus 63 feet precise level datum, which permitted low tide work only.

THIRD LOCKS DREDGING

The dredging division is charged with the performance of practically all of the wet excavation in connection with the construction of the third locks project. During the year construction dredging was performed in the various bypass channels and auxiliary Third Locks work as follows:

New Gatun locks bypass channel, north approach.—Dredging on this project was in progress for 43½ days during the year by the dipper dredge *Gamboa* and the pipeline suction dredge *Mindi*. The *Mindi* worked 26 days and removed 315,100 cubic yards of construction material. The dipper dredge *Gamboa* worked 17½ days removing 52,600 cubic yards of which 39,000 was construction material and 13,600 was maintenance. Total construction excavation to the end of the year on the New Gatun locks bypass channel, north approach, was 4,396,700 cubic yards, which represents 53 percent of the total to be removed. Subaqueous mining by the drillboat *Thor* was in progress on this bypass channel for 9 days, during which time 7,300 cubic yards of rock were broken. There was no shore mining on this bypass channel during the year.

New Miraflores locks bypass channel, north approach.—Dredging in the New Miraflores locks bypass channel, north approach, totaled 160,300 cubic yards and was performed by the dipper dredges *Cascades* and *Gamboa*, working 24 and 16 days respectively. The total construction excavation to the end of the year on the New Miraflores locks bypass channel, north approach, was 1,534,800 cubic yards, which represents 41.4 percent of the total to be removed from this project. The drillboat *Vulcan* working 132 days in this bypass channel on subaqueous mining broke 240,700 cubic yards of rock. Shore mining with star well and rotary drills was in progress for 162 days during which 340,600 cubic yards of rock were broken.

New Miraflores locks bypass channel, south approach.—In the new Miraflores locks bypass channel, south approach, the dipper dredges *Cascadas* and *Paraiso*, working 54 and 70 days respectively, excavated 528,100 cubic yards. Total excavation to the end of the year in this channel was 3,241,400 cubic yards, which represents 26.2 percent of the total to be dredged. Subaqueous mining by the drillboat *Terrier No. 2* was in progress 100 days, by the *Thor* 127½ days, and the *Vulcan* 127 days, the total operations of which resulted in the breaking of 155,800 cubic yards of rock. Operation of the star well and rotary drills was in progress on this bypass channel 290 days during the year, during which time 595,300 cubic yards of rock were broken. *Excavator No. 1* and *Excavator No. 4* worked 147½ and 51½ days respectively, in Victoria Dump area, building dike and excavating drainage ditches, during which time a total of 9,040 lineal feet of

dike was constructed and 1,785 lineal feet of drainage ditch was excavated.

SLIDES

The total excavation from slides in Gaillard Cut from June 30, 1913, to June 30, 1942, amounted to 51,644,300 cubic yards. During the past fiscal year 94,300 cubic yards were excavated bringing the total slide excavation to 51,738,600 cubic yards as of June 30, 1943. Slide activity throughout the cut was generally much less than in previous years. Culebra slide (west), although very inactive with comparison with previous years, was the only slide to show movement throughout the year. Small movements were observed in eight slide areas during the year including small breaks in Culebra slide (east), Culebra slide extension (east), Lirio slide (east) and Contractor's Hill slide (north), the latter being the only one from which material entered the Canal prism. The dipper dredge *Gamboa* worked 29 days during the year excavating a total of 94,300 cubic yards of material from slide areas, of which 87,100 were from Culebra slide (west), 3,300 from Las Cascadas slide (east), and 3,900 from Contractor's Hill slide (north). Numerous bank breaks occurred which were all limited to small movements of no consequence.

SUBSIDIARY DREDGING DIVISION ACTIVITIES

SAND AND GRAVEL

During the fiscal year 545,591 cubic yards of sand and gravel of all classes were shipped from the Gamboa gravel stock pile, as compared with 675,376 cubic yards in the previous fiscal year. The dredge *Las Cruces* worked 77 days producing 440,100 cubic yards of run-of-bank gravel, which was pumped to the stock pile. The craneboat *Atlas* worked 137 days producing 191,320 cubic yards of Chame sand which were pumped into barges at Chame Point, Republic of Panama, and delivered to Balboa.

HYACINTH CONTROL AND OTHER ACTIVITIES

The Canal and adjacent waters through Gaillard Cut, Miraflores Lake, and Gatun Lake (including all dump areas) were patrolled and the growth of hyacinths kept under control. Log booms at the mouths of the Chagres and Mandinga Rivers were maintained to prevent hyacinths, logs, floating islands, and other obstructions from entering the Canal channel during freshets or spilling at Madden Dam. During the year periodical inspection trips were made in the Chagres, Mandinga, Frijoles, and Azules Rivers, and along the shores of Barro Colorado Island, Pena Blanca and Gigante Bays, dumps Nos. 1 to 14, and Miraflores, Pedro Miguel, and Red Tank Lakes. Weekly

inspection trips were also made of the Canal channel between Gamboa and Gatun.

It is estimated that 18,566,500 hyacinth plants were destroyed during the year and of these 5,944,500 were sprayed, 8,187,000 were pulled, and 4,435,000 were removed by cableway. Seventy-six cords of driftwood were also removed by the cableway during the year and an additional 279 cords of driftwood were picked up along the banks of the Chagres River, Mandinga River, Chilibre River, Cocoli River, Gaillard Cut, and Gatun Lake, Miraflores Lake, Pedro Miguel Lake, and Red Tank Lake.

EQUIPMENT

Main items of dredging equipment were operated during the year as shown in the following tabulation:

Unit and name	Type	In service	Out of service	
			Repairs	Reserve or stand-by
		Months	Months	Months
Dredges:				
<i>Cascadas</i>	15-yard dipper	9.4	2.6	
<i>Gamboa</i>	do	7.6	1.9	2.5
<i>Paraiso</i>	do	10.5	1.5	
<i>Las Cruces</i>	24-inch suction	11.0	1.0	
<i>Mindi</i>	28-inch suction	3.3	1.3	
Craneboat: <i>Atlas</i>	75-ton	9.5	.5	2.0
Derrick Barge No. 157	40-ton	8.6	3.0	.4
Grader Barge No. 4	14-inch pumps	1.7		10.3
Relay barges:				
No. 3	20-inch			12.0
No. 24	24-inch .....	.7	.1	11.2
Drillboats:				
<i>Terrier No. 2</i>	Steam	3.4	.6	18.0
<i>Vulcan</i>	Air	11.9	.1	
<i>Thor</i>	do	7.9	.1	
<i>Teredo No. 2</i>	Steam			12.0
Air compressor No. 29	2,500 CFM .....	.3	1.7	10.0
Floating cranes:				
<i>Ulysses</i>	250-ton	6.2	.2	5.6
<i>Hercules</i>	do	2.2		9.8
Ferryboats:				
<i>President Amador</i>	22-car	7.6	2.7	1.7
<i>President Roosevelt</i>	do	9.9	1.1	1.0
<i>President Porras</i>	do	2.3	2.0	

¹ *Terrier No. 2* out of commission 8 months; *Teredo No. 2* out of commission 12 months.

In addition to the above equipment, the dredging division also operated during the year 9 large and 5 small tugs, 20 launches, 5 quarterboats, 7 excavators, 11 tractors, 30 star well drills, 10 Bucyrus tractor-mounted well drills, 4 Sullivan truck-mounted rotary drills, 10 diamond core drills, and a miscellaneous fleet of sand barges, dump scows, and service lighters in dredging or mining operations or in auxiliary service.

During the past year the dredging division of The Panama Canal acquired several units of additional equipment which are included in the above listing. The most important one was the new 28-inch pipe line suction dredge *Mindi* which arrived on the Isthmus on January 10, 1943, and was placed in service on February 22, 1943. The new drill-

boat *Thor* had arrived on January 15, 1942, but was not actually placed in service until October 30, 1942. The second-hand Diesel electric ferryboat *Nassau* purchased in the United States was received on the Isthmus November 22, 1942. It was renamed the *President Porras* and after undergoing reconditioning in local shops it was put into service at Thatcher Ferry on February 20, 1943.

FERRY SERVICE

As stated in last year's report, the new bridge at Miraflores was opened May 20, 1942, which provided highway connection across the Canal for the first time. Prior to the opening of the bridge, ferries had been the only means of crossing the Canal, and for some time these services had been operated to capacity. Following the opening of the bridge, there was a natural decrease in ferry traffic, and the auxiliary service across Miraflores Lake was not operated during the fiscal year 1943.

The Thatcher Ferry service, connecting Balboa on the eastbank, with Thatcher Highway on the west bank, was in continuous operation throughout the year, except for 17 days when alterations were being made to the ferry slips.

In the following table are shown the more important statistics relative to operation of the Thatcher Ferry for the past 2 fiscal years:

	1943	1942
Single trips made by 3 ferries.....	41, 158	61, 218
Vehicles carried:		
Panama Canal vehicles.....	23, 118	33, 617
U. S. Army vehicles.....	122, 780	148, 210
Commercial trucks.....	101, 795	206, 184
Commercial passenger cars.....	63, 991	137, 366
Private cars.....	167, 659	466, 821
Total vehicles carried.....	479, 343	992, 198
Total passengers carried.....	3, 208, 626	5, 943, 845

It will be noted that the number of vehicles carried on Thatcher Ferry in 1943 was less than half the number carried in 1942. In comparison with the number carried on both the Thatcher and Miraflores Ferries, vehicular traffic carried on the ferries in 1943 was about one-third as much as in 1942.

THIRD LOCKS PROJECT

AUTHORIZATION

The third locks project, providing for the improvement and enlargement of the capacity of the Panama Canal in the interest of defense and interoceanic commerce at a cost not to exceed \$277,000,000 was authorized by act of Congress, Public No. 391, Seventy-sixth

Congress, first session, approved August 11, 1939. The project involves the design and construction of a new set of locks at some distance from the existing locks, the excavation of approach channels to connect the new locks with the existing Canal, and the design and construction of appurtenant works.

APPROPRIATIONS

The War Department Civil Appropriation Act for 1941 provided \$15,000,000 for the third locks project and, in addition, empowered the Governor of The Panama Canal, when authorized by the Secretary of War, to enter into contracts prior to July 1, 1941, for or on account of the construction of the project, to an amount not in excess of \$99,000,000. The War Department Civil Appropriation Act for 1942, approved May 23, 1941, provided \$34,932,000 for the construction of additional facilities to increase the capacity of the Panama Canal, and, in addition, empowered the Governor, when authorized by the Secretary of War, to enter into contracts prior to July 1, 1942, to an amount not in excess of \$79,000,000. Pursuant thereto, authority to enter into contracts to the extent of \$79,000,000 was requested by the Governor on June 2, 1941, and was approved by the Secretary of War, June 13, 1941.

The Third Supplemental National Defense Appropriations Act, 1942, approved December 17, 1941, making supplemental appropriations for the national defense for the fiscal years ending June 30, 1942, and June 30, 1943, provided an additional contract authorization of \$104,000,000 for those fiscal years. Pursuant thereto, authority to enter into contracts to the extent of \$104,000,000 was requested by the Chief of Office of The Panama Canal on January 24, 1942, and was approved by the Secretary of War, January 27, 1942. The War Department Civil Appropriation Act, approved April 28, 1942, provided \$56,826,800 for the construction of additional facilities for the improvement and enlargement of the capacity of the Panama Canal.

The total expenditures to the end of the fiscal year amounted to \$67,456,974.

ORGANIZATION

The design and construction of the third locks project were assigned to the special engineering division which was established August 15, 1940, by the consolidation of the former special construction division and the special engineering division. The division develops designs and conducts investigations and research relative thereto; prepares plans and specifications for the work; prepares contracts and supervises their prosecution; and plans for, supervises, and coordinates the work of all Panama Canal and contract forces engaged on the third locks project and appurtenant works.

At the start of the fiscal year, the gold personnel of the special engineering division numbered 884. This number was reduced during the fiscal year and on June 30, 1943, a total of 367 employees were on the gold roll. This reduction in force was due to the modification of the construction program of the third locks in accordance with a directive of the Secretary of War, dated May 23, 1942.

MODIFICATION

On May 23, 1942, the Secretary of War issued a directive to the Governor that certain modification be made in the third locks construction program with a view to bringing the construction of the project into closer conformity with the over-all war program. On May 25, 1942, the Governor, pursuant to the directive of the Secretary of War, issued instructions that the construction of the third locks project be modified. In accordance with the above instructions the following modifications covering major features of the project were made: Contract for the new Gatun locks structure, which had been awarded in February 1942, was terminated; bids for the construction of the new Miraflores and Pedro Miguel locks, which were being studied at the time of the issuance of the directive, were rejected; contract for processing concrete aggregates was terminated upon the completion of the Chagres and Miraflores processing plants; contracts for furnishing cement were terminated; contract for furnishing miter gates, valves, and bulkheads, was terminated; and the excavation of the new Pedro Miguel lock and north approach channel, was deleted from the contract of the Pacific excavation contractor. Work directed to be carried forward under the modified program included the completion of the excavation for the new Gatun locks; the excavation for the new Miraflores locks; and the manufacture and temporary installation of the emergency power plant units and auxiliary equipment. Other items ordered continued under the modified program included the dredging work (by Canal forces) of the bypass channels on a modified scale and low priority basis, and the design of all major features of the third locks project, including the preparation of contract plans and specifications in readiness for resumption of the construction schedule.

DESIGNS—PLANS—SPECIFICATIONS

Designs previously begun were vigorously prosecuted and many were completed during the year. Contract drawings for emergency dam operating machinery, miter gates, valves and bulkheads, motors and brakes, compressed air system, lock ventilating system, towing locomotives, lock caisson, and processing concrete aggregates were completed. Work on remaining procurement and construction con-

tract drawings continued. Other work during the year included completion of designs and plans for transmission line relocations, high-voltage switching stations and mechanical equipment installations in the temporary construction power plants. Design of the bridges over new Gatun locks and new Miraflores locks was completed under contract by Sverdrup & Parcel, consulting engineers.

Tests, investigations, and studies continued on various types and kinds of equipment and machinery to determine those most suitable for use in the new locks. Preliminary investigation and development was initiated on a long-term metal-corrosion test which will continue over a period of 15 years. Construction and testing of a third lock model conforming to present designs for the third locks was completed and a final report submitted. Comprehensive reports on the design of the several features and the construction completed were in progress.

CONSTRUCTION

Atlantic area.—Throughout the current fiscal year the Martin Wunderlich Co. and Okes Construction Co. continued the prosecution of their contract and by the end of the year excavation for the new Gatun locks structure, south approach channel, and appurtenant works was brought to a practical completion with only minor items of clean-up remaining to be done. Total excavation under this contract amounted to 13,968,951 cubic yards of material and payments in the sum of \$10,961,918 had been made up to the end of the year.

Construction of the building for the emergency power plant was completed during the year by the building division of The Panama Canal and installation of equipment was started by the Martin Wunderlich Co. and Okes Construction Co. in January 1943 and at the end of the fiscal year was estimated to be approximately 92 percent complete.

Dredging of the approach channel which was begun by forces of the dredging division, Panama Canal, in October 1940, continued throughout the year. As of June 30, 1943, a total of 4,396,700 cubic yards of material had been removed; this represents 53 percent of the total yardage to be excavated.

Pacific area.—The excavation of the new Pacific locks and appurtenant works under contract to Panama Constructors, Inc., was carried to completion with the exception of a few days' work on railroad excavation and release of equipment. Total excavation under the contract at the end of the year was 8,514,469 cubic yards and total payments amounted to \$12,766,075.

The construction of the aggregate processing plants, under contract to Nevada Constructors, Inc., was completed as directed and accepted on October 27, 1942. Total payment under this contract was \$2,443,943.

Construction of the building for the emergency power plant was begun and virtually completed during the year by the building division of The Panama Canal. Installation of equipment by the Martin Wunderlich Co. and Okes Construction Co. in May 1943 was 27 percent complete at the end of the year.

Dredging of the new Miraflores locks south and north approach channels was continued by forces of the Panama Canal's dredging division and at the end of the year totaled 3,241,400 cubic yards and 1,534,800 cubic yards, respectively. In the south approach to the new Pedro Miguel lock a total of 377,600 cubic yards have been dredged up to the end of the fiscal year.

General.—The relocation and construction of miscellaneous structures appurtenant to the third locks were virtually completed by various divisions of the Panama Canal. This work consisted of the relocation of railroads, highways, streets, power transmission lines, etc., and the construction of employee housing projects, Mindi Dock, and other smaller projects.

SECTION II •

BUSINESS OPERATIONS

The business enterprises carried forward by The Panama Canal and by the Panama Railroad Co. embrace a number of activities which in the United States would normally be carried on by private initiative. These activities have been developed to meet the needs of shipping passing through the Canal and of the Canal-railroad organization and its employees. During the past year, as in the 2 years preceding, the business operations have also served very important needs of the Army and Navy, and the programs of the business activities have been expanded and adjusted to meet these and other requirements of the war effort. The business enterprises include those sections which are engaged in the supply of fuel, provisions, ship chandlery, and repairs to vessels; the provision of public utility services, the maintenance of living quarters and the sale of food, clothing, and other essentials to Canal and Railroad employees; the handling of cargo and allied operations; and the operation and management of a railroad line. A steamship line between New York and the Isthmus also was operated prior to the outbreak of war, but since the steamers of the line have been requisitioned for direct employment in the war effort, this function was largely inactive during 1943.

The Canal and the Railroad are separate organizations, but the administration of both organizations is vested in the Governor of The Panama Canal, who is also president of the Panama Railroad Co.

PANAMA CANAL BUSINESS OPERATIONS

Business operations of The Panama Canal are conducted separately from operating activities pertaining directly to the transiting of vessels, and the government of the Canal Zone. The annual appropriation acts for The Panama Canal authorize for expenditure and reinvestment all moneys received from the conduct of auxiliary business activities with the proviso that any net profit derived from such business activities shall be covered annually into the Treasury of the United States.

It is the aim to operate the business activities as a whole on a self-supporting basis and to include as a charge against business operations a fixed capital charge of 3 percent (with some minor variations) as interest on the investment. In the accounting of profits to be covered into the Treasury, the amount representing charges for interest on

investment is a part of the net profits covered into the Treasury and is in effect a reimbursement to the United States Treasury for interest paid by it to holders of United States bonds. . The investment in business activities totaled \$44,027,783.60 at the beginning and \$46,448,530.57 at the end of the fiscal year (tables 4 and 5, sec. V). The capital charge for the fiscal year 1943 was \$1,035,105.07 (table 20, sec. V). The net revenues of \$1,492,542.70 exceeded this amount by \$457,437.63.

MECHANICAL AND MARINE WORK

During the past fiscal year, there was further expansion in the work performed by the mechanical division, the output for 1943, amounting to \$16,448,347, being more than double that of the previous fiscal year. Following the outbreak of war in December 1941, the facilities of the division were geared, insofar as possible, to meet the demands placed upon them by the war effort, with the result that in contrast with operations in normal times (when the majority of the work is performed for units of The Panama Canal), the division's major effort in 1943 was expended in the repair, alteration, and conversion of vessels for the United States Navy. Work performed for The Panama Canal in 1943, while showing a substantial gain in dollar value, represented but 30 percent of the total output, compared with 35 percent of the total last year and 58 percent of the total in 1941.

The following table shows the source and class of work performed during the past two fiscal years:

Gross revenue—Class and source

	Fiscal year 1943		Fiscal year 1942	
	Gross revenue	Percent	Gross revenue	Percent
Class:				
Marine.....	\$10,460,410	63.6	\$4,695,585	57.8
Railroad.....	1,387,273	8.4	1,165,533	14.3
Fabricated stock.....	596,927	3.6	402,173	5.0
Sundries.....	4,003,737	24.4	1,860,931	22.9
Total.....	16,448,347	100.0	8,124,222	100.0
Origin:				
The Panama Canal.....	4,959,330	30.2	2,854,599	35.1
Panama Railroad Co.....	1,485,459	9.0	1,251,931	15.4
U. S. Army.....	1,554,893	9.5	496,254	6.1
U. S. Navy.....	7,079,926	43.0	2,581,712	31.8
Commercial and other interests.....	1,368,739	8.3	939,726	11.6
Total.....	16,448,347	100.0	8,124,222	100.0

Operating expenses for the fiscal year totaled \$16,343,646, leaving a net revenue from operations of \$104,701.

DRYDOCKS

During the year 363 drydockings were made at the Balboa and Cristobal drydocks, further details of which are given below:

Vessels belonging to—	Balboa drydock	Cristobal drydock	Total
Panama Canal divisions.....	27	4	31
U. S. Navy.....	123	109	232
U. S. Army.....	45	16	61
Panama Railroad Co.....		1	1
Outside interests.....	13	25	38
Total.....	208	155	363

The Balboa drydock was unoccupied 20 days during the year, while the Cristobal drydock was unoccupied 16 days. In the fiscal year 1942 the Balboa drydock was unoccupied 10 days and the Cristobal drydock 22 days.

PLANT IMPROVEMENT

During the fiscal year 1942 the Navy Department authorized the construction of two marine railways, two dry docks, and several other improvements within the mechanical division area. During the fiscal year 1943 work on these improvements was undertaken and has progressed in a very satisfactory manner. Machine tools worth approximately three-quarters of a million dollars were furnished by the Navy and installed in the shops during the past year. In addition to this The Panama Canal expended about 1 million dollars for various improvements and betterments as well as for the purchase of machine tools, making a total of some \$1,750,000 expended during the year on capital improvements, exclusive of the drydocks and marine railways. In addition to this the Navy authorized an additional \$350,000 for the purchase of more machine tools to be installed during the coming year, while The Panama Canal is continuing to finance an important part of the expansion in local marine repair facilities.

SALVAGE SECTION

During the fiscal year 1943 a salvage section was organized as a unit of the mechanical division of The Panama Canal. A nucleus of trained divers was available within the organization of The Panama Canal and two additional divers were obtained and were given a course of special training. A site on Gatun Lake was chosen and the construction of a salvage station was underway at the end of the year. In addition, a salvage barge was outfitted and equipped with necessary decompression chamber, air compressors, pumps, etc. During the year the salvage section successfully righted, raised, and delivered, two naval vessels which were sunk by accidents within the waters of the Panama Canal.

OPERATIONS

During the year the mechanical division was principally engaged in marine work. The preceding statistical data show that on a dollar basis the output of the division was approximately double that of 1942 even though the increase in personnel was only 42.6 percent. However, during the fiscal year 1943, the United States Navy initiated the procedure of furnishing practically all of the material used in the prosecution of naval work. The cost of that material, which is not included in the preceding financial figures, is unknown but is conservatively estimated at \$6,000,000. To the total shown in the preceding table for the year 1943, the value of naval material should be added to make same comparable with other years. It will then be seen that the output for 1943 was approximately 150 percent greater than that of the best previous year.

During the fiscal year under consideration, the division's greatest effort was expended in the repair, alteration, and conversion of naval vessels. In previous years this work was only approximately 10 percent of the output of the division. During the present year, on a labor and material basis, it was nearer 60 percent. During the same period the work for the Army increased from 6 percent to approximately 10 percent. While work for divisions of The Panama Canal and Panama Railroad Co. was of less relative importance with respect to the total work load of this division, the total cost of such work was greater than in any year since 1920.

Because of military restrictions the scope, character, and type of work undertaken by the division are not set forth in detail. The records of the division show that many large, complicated, and intricate jobs were undertaken successfully and completed, which formerly could have been done only in the United States. While it has been necessary to refuse work not directly connected with the war effort, or work classified merely as desirable, the division has accomplished every item that was sufficiently urgent to be accorded a war priority status.

ELECTRICAL INSTALLATION AND REPAIR WORK

The principal activities of the electrical division are: The operation and maintenance of the power system; the operation and maintenance of telephone, telegraph, electric clock, fire alarm, printing telegraph, and railway signal systems; the operation and maintenance of the street-lighting system; and the installation and maintenance of electrical equipment as required by the Panama Canal and other government agencies, or by vessels undergoing repairs at the Canal terminals.

Following is a comparison of the four principal classes of expenditures of the electrical division for the fiscal years 1942 and 1943:

Expenditures	1943	1942
Maintenance and operation of power system	\$1,182,345	\$1,265,905
Construction and maintenance of electric work	4,046,604	4,627,231
Maintenance and operation of telephones	216,567	194,031
Maintenance and operation of railway signals	63,401	46,848

Further information concerning principal construction projects undertaken and of the operation of the power system are given on page 32 of this report, under the general heading of Canal Operation, while operating statistics of the telephone system are covered on page 63 under the operations of the Panama Railroad Co. The expenditures shown above include interdepartmental transactions. As an example, maintenance and repairs on the power system are performed by the electric work unit and, hence, this direct element of expense is included in the expenses of both the power system and the electric work.

It may be noted from the above tabulation that electrical construction and maintenance expenses aggregated a little over \$4,000,000 for 1943 which is some \$600,000 less than the expenditures for the preceding year, which was the peak year of the large program of extension of the power system to provide electric current to the large projects under construction and installation of the electrical features of the projects.

PURCHASES AND INSPECTIONS IN THE UNITED STATES

The principal purchases of supplies for The Panama Canal were made, as heretofore, through the Washington Office of The Panama Canal; the volume of the purchases is indicated by the following table:

	Fiscal year		
	1943	1942	1941
Number of purchase orders placed	13,373	17,225	16,383
Value of orders placed	\$13,265,404	\$30,755,528	\$35,852,905
Aggregate of purchases since 1904 made through Washington office	\$340,023,732	\$327,086,446	\$296,330,918
Number of disbursement vouchers prepared	28,703	25,358	21,633
Value of above vouchers	\$30,948,054	\$35,011,009	\$22,300,154
Number of collection vouchers prepared	484	415	318
Value of above vouchers	\$3,822,001	\$1,370,014	\$829,883
Cash discounts taken	\$90,596	\$154,859	\$156,321
Realized from sales of surplus material	\$4,817	\$33,426	\$227,678

STOREHOUSES AND SHIPS CHANDLERY

In addition to the main function of requisitioning, storing, and issuing general supplies for the Canal and Railroad (exclusive of the merchandising operations of the commissary division) the Canal Zone storehouses sell ships' chandlery and other supplies to commer-

cial shipping as well as to units of the United States Army and Navy. The following statistics cover the more important features of the storehouse operations during the past 3 years:

	Fiscal year		
	1943	1942	1941
Gross revenues—sales and issues	\$21,316,977	\$31,395,349	\$24,474,368
Cost of materials, plus operating expenses	21,297,328	31,357,714	24,227,094
Net revenues	19,649	37,635	247,274
Inventory as of June 30	13,434,960	8,110,409	5,382,212
Scrap and obsolete stock on hand, June 30	24,185	16,795	23,025

OBSELETE AND UNSERVICEABLE PROPERTY AND EQUIPMENT

During the year disposition was made by sale, or by destruction where the items had no money value, of obsolete or unserviceable property and equipment which had an original value of \$660,580. Replacements were made as necessary.

FUEL OIL, DIESEL OIL, GASOLINE, AND KEROSENE

All deliveries of products of these classifications, to and from storage tanks for private companies, as well as for The Panama Canal and the United States Navy, are made through pipe lines and pumping plants of The Panama Canal.

The following table summarizes the operation of the fuel oil handling plants for the past 3 years:

	Fiscal year		
	1943	1942	1941
Fuel and Diesel oil:	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>
Received by The Panama Canal	450,846	530,759	511,579
Used by The Panama Canal	471,366	463,443	359,150
Sold by The Panama Canal	34,706	47,544	54,225
Miscellaneous transfers on tank farms	34,240	29,102	39,551
Pumped for outside interests	20,512,062	11,573,369	11,992,503
Total barrels handled	21,503,220	12,644,217	12,957,008
Handled at Mount Hope (Atlantic side)	13,767,378	7,510,902	7,195,492
Handled at Balboa (Pacific side)	7,735,842	5,133,315	5,761,516
Total barrels handled	21,503,220	12,644,217	12,957,008
Number of ships discharging or receiving fuel and Diesel oil:			
Panama Canal craft	171	187	95
All others	3,057	2,596	2,620
Total	3,228	2,783	2,715
Gasoline and kerosene:			
Bulk gasoline received—gallons	13,007,076	12,583,934	8,286,375
Bulk kerosene received—gallons	3,219,988	2,066,378	1,742,921
Financial results of operations:			
Total revenues	\$1,617,781	\$1,181,822	\$1,009,932
Total expenditures (including cost of sales)	1,129,620	1,070,164	966,408
Net revenues	488,161	111,658	43,524

BUILDING CONSTRUCTION AND MAINTENANCE

The program of construction under way at the end of the 1942 fiscal year was continued in 1943. Maintenance was continued on the existing buildings in use, with minor repairs and replacements being made throughout the year.

The principal projects of building construction for The Panama Canal and Panama Railroad Co. completed by the building division of The Panama Canal during the fiscal year 1943 were as follows:

Ancon—Balboa.—Censorship building; 29 quarters buildings for gold employees; 2 wards and venereal clinic at Gorgas Hospital; and 2 storehouses for the mechanical division.

Cristobal.—Emergency electrical substation; additional wards and venereal clinic at Colon Hospital; tire storehouse; and marine electric shop.

Diablo Heights.—Gymnasium; one quarters building for gold employees; and tire storehouse.

Pedro Miguel.—Extension to filter and pump station, Miraflores; emergency substation, Miraflores; and dynamite magazine at Summit.

Gamboa.—Twenty-two quarters buildings for gold employees; and storehouse.

Corozal.—Storage shed; and five quarters buildings for gold employees.

Madden Dam.—Installation of mass concrete, columns, beams and floors for the third generating unit at the Madden Dam power plant.

Gatun.—Emergency power plant; and gold commissary building.

Margarita.—Six quarters buildings for gold employees.

In addition to the principal projects listed above, which were completed during the year for The Panama Canal and Panama Railroad Co., several large projects were completed for the United States Army and Navy.

Expenditures for maintenance and repair work during the past year aggregated \$1,624,647, of which \$582,595 was expended on maintenance of quarters occupied by gold employees and \$121,745 on maintenance of quarters occupied by silver employees; the balance of \$920,307 was spent on all other maintenance work performed by the building division.

The total volume of construction and maintenance work for the past 3 years is summarized below:

	Fiscal year		
	1943	1942	1941
For Canal divisions:			
Repair and maintenance work	\$954, 373	\$981, 559	\$894, 035
Construction work	5, 145, 956	8, 249, 126	7, 181, 052
For the Panama Railroad Co.:			
Repair and maintenance work	238, 741	195, 656	255, 148
Construction work	157, 604	611, 277	355, 616
For other departments of the Government, employees, and others	2, 467, 049	628, 721	308, 793
Total	8, 963, 723	10, 666, 339	8, 994, 644
Total maintenance	1, 624, 647	1, 342, 613	1, 318, 361
Total construction	7, 339, 076	9, 323, 726	7, 676, 283
Total	8, 963, 723	10, 666, 339	8, 994, 644

QUARTERS FOR EMPLOYEES

Gold employees.—With the practical completion in 1942 of a large program of quarters construction to provide housing for the large influx of employees to work on the third locks and other construction projects, no quarters construction program had been planned for 1943. During the year, however, The Panama Canal relinquished to the United States Navy a section known as the quarantine area in which were located a number of houses occupied by Panama Canal employees, and to replace this loss 21 new quarters buildings, containing 45 apartments, were constructed.

The demand for quarters in 1943 was not as acute as it had been in the two or three preceding years and vacancies in family quarters are accumulating. With this eased situation quarters are now available for a number of employees who had not established residence here for their families prior to December 7, 1941, and who have heretofore been unable to bring them to the Isthmus.

On June 30, 1942, there were on file in all districts 467 applications for family quarters from regular employees, and on June 30, 1943, there were 316, a decrease of 151 from the previous year. The decrease in the waiting lists is the result of a decline in the work on the third locks and special item projects and the failure of regular employees to apply for quarters on account of the passport restrictions preventing their families from coming to the Isthmus.

It is intended to continue the replacement of old quarters, although additional construction will be suspended until such time as materials become more readily obtainable than at present. The old quarters constructed prior to 1909 show increased deterioration each year, which necessitates increased maintenance expense. Several condemned quarters, the maintenance of which is paid by the occupants, are still in use.

No changes were made in the general regulations governing assignment and rental of quarters to American employees.

Silver employees.—The operation of silver quarters was continued on the same basis as in previous years. There were no new silver quarters constructed during 1943 and no new construction is contemplated in the near future, except that alterations to certain existing buildings are planned to provide additional family quarters. The demand for quarters from silver employees is still far in excess of supply. As of June 30, 1943, there were 2,732 applications on file for family quarters and 853 applications for bachelor quarters, as compared with a total of 3,935 applications on file June 30, 1942.

MOTOR TRANSPORTATION

The motor transportation division is charged with the operation and maintenance of motor transportation for the departments and divisions of The Panama Canal and Panama Railroad Co. The centralization of transportation facilities in this division and the requirement that it be operated on a self-sustaining basis have been primarily for the purpose of supplying needed transportation at a minimum cost to The Panama Canal and Panama Railroad Co.

Due to gasoline and tire rationing and the resultant curtailment in the operation of private vehicles, it was necessary during 1943 to inaugurate under supervision and control of the motor transportation division a public transportation system of privately owned busses to carry employees and their families in and between the various town-sites in the Canal Zone.

Revenues of the division during the past year totaled \$2,606,696 and the expenses \$2,589,880, which left a net revenue of \$16,816. A large amount of heavy hauling in connection with various building and highway construction projects was performed during the year.

In the fiscal year 1943 there were 143 cars and trucks purchased, and 17 cars and trucks were retired. At the close of the fiscal year, 1033 cars and trucks, 22 trailers, and 6 motoreycles were on hand.

APPOINTMENT OF MILEAGE ADMINISTRATOR

In line with the President's order calling for a reduction of at least 40 percent in the use of motor vehicles operated by departments and agencies of the Federal Government, the superintendent, motor transportation division, was appointed Government Mileage Administrator for The Panama Canal and Panama Railroad Co., and has been charged with installing and administering the Government mileage conservation program.

PANAMA CANAL PRESS

The operations of the Panama Canal Press were continued under the same policy as heretofore. The printing plant carries stocks of materials, and prints such forms, stationery, etc., as are required on the Isthmus in connection with the operation of The Panama Canal

and Panama Railroad Co. The following is a summary of the financial operations of this plant during the past 2 years:

	Fiscal year	
	1943	1942
Gross revenues.....	\$569,780	\$531,024
Total output expense (including supplies not processed in the printing plant).....	561,896	520,697
Net revenue.....	7,884	10,327

SUBSISTENCE

The subsistence section, which was set up May 1, 1941, to provide meals for contract laborers brought to the Isthmus in connection with the large construction program, continued under the same policy as in the previous year. In 1943, a total of 9,506,976 meals or 3,168,992 rations were served by this unit, an increase of 20 percent over the 2,613,719 rations served in fiscal year 1942. In spite of higher costs of raw food this section has consistently been able to reduce its ration costs; the ration cost was \$0.416 in fiscal year 1943 compared to \$0.456 in fiscal year 1942.

REVENUES DERIVED FROM THE RENTAL OF LANDS IN THE CANAL ZONE

Rentals on building sites and oil tank sites in the Canal Zone totaled \$32,517 for the year as compared with revenues of \$46,992 for the fiscal year 1942. Rentals from agricultural land in the Canal Zone totaled \$8,207 as compared with \$9,058 for the preceding year. At the close of the fiscal year 791 licenses were in effect, covering 1,557 hectares of agricultural land within the Canal Zone. This is a reduction of 57 in the number of licenses under the previous fiscal year and a reduction in the area held under licenses of 88 hectares. This reduction is largely the result of the policy adopted in May 1935, as a health measure that no more licenses for agricultural land be issued and that holdings under licenses previously granted shall not be sold or transferred.

BUSINESS OPERATIONS UNDER THE PANAMA RAILROAD COMPANY

The Panama Railroad Co. was incorporated in 1849 under the laws of the State of New York for the purpose of constructing and operating a railroad across the Isthmus. When the concession, rights, and property of the New French Canal Co. were purchased in 1904, the stock of the Panama Railroad Co. became the property of the United States Government. Since the acquisition of the railroad by the United States, its corporate status has been preserved and the railroad has continued to function as a common carrier.

At the beginning of Canal construction work, by Executive order of the President of the United States, the Panama Railroad Co. was made an adjunct to The Panama Canal. Its operations are supervised by a

board of directors under the direction of the Secretary of War. As the operations of the railroad complement those of the Canal, the policy has been for the board of directors to elect the Governor of The Panama Canal as president of the Panama Railroad Co. Thus, the Governor of The Panama Canal is the administrative head of the Panama Railroad Co. This practice has insured complete coordination of the activities conducted by the two organizations.

As the activities of the Railroad Company are covered in detail in its annual report, only the major features of operation as they relate to Canal administration are covered in this section.

In addition to the operation of the trans-Isthmian railroad, the business enterprises conducted by the Panama Railroad Co. include the following: The loading, unloading, storage, and transfer of cargo for shipping interests at the terminal ports; the operation of wholesale warehouses, retail stores, and subsidiary manufacturing plants engaged in the supply of food, clothing, and other essential commodities to governmental agencies, employees, and their families; and the operation of coaling plants, two hotels, a dairy, and a laundry. Prior to the outbreak of war the company also operated a steamship line between New York and the Isthmus, but as the vessels of this line have been requisitioned by the Government this function was inactive during 1943.

TRANS-ISTHMIAN RAILROAD

The railroad line operates between Colon, the Atlantic terminus, and Panama City, the Pacific terminus. In addition to those cities, the railroad serves all nearby activities of The Panama Canal. Gross revenues from the operations of the railroad proper (not including subsidiary business activities) during the fiscal year 1943 amounted to \$4,738,504. Revenue freight totaled 1,312,189 tons, as compared with 1,773,947 tons during 1942, a decrease of 461,758 tons.

Comparative statistics covering the significant features of railroad operations during the past 3 years are presented in the following table:

	1943	1942	1941
Average miles operated, Colon to Panama	47.61	47.61	47.61
Gross operating revenue	\$4,738,504	\$4,915,925	\$3,156,782
Number of passengers carried:			
First-class	443,910	319,235	232,005
Second-class	702,989	558,893	433,357
Total	1,146,899	878,128	665,362
Revenue per passenger-train mile	\$8.82	\$7.62	\$5.68
Revenue per freight-train-mile	\$14.22	\$13.42	\$11.68
Passenger train mileage	146,134	141,549	132,677
Freight train mileage	305,545	345,537	228,775
Work train mileage	8,117	3,098	3,134
Total train mileage	459,796	490,184	364,586
Switch locomotive miles	317,906	298,867	195,069

RECEIVING AND FORWARDING AGENCY

This division handles the dock and harbor activities of the Panama Railroad Co. at the two terminals of the Canal. The following statistics summarize the results of operations for the past 3 years:

	1943	1942	1941
Total revenue.....	\$4,388,212	\$3,934,304	\$2,999,118
Total cargo handled and transferred across docks.....	<i>Tons</i> 2,018,377	<i>Tons</i> 2,508,421	<i>Tons</i> 2,390,618
Cargo stevedored by Panama Railroad Co.....	854,110	1,145,186	1,135,280
Cargo ships handled.....	2,381	3,345	3,720
Banana schooners handled.....		449	1,211
Agency service furnished vessels.....	36	42	83

COALING PLANTS

The volume of coaling plant operations at Cristobal and Balboa for the past three fiscal years is shown on the following table:

	1943	1942	1941
Gross revenues.....	\$1,875,602	\$1,414,120	\$782,412
Coal sold.....	<i>Tons</i> 77,906	<i>Tons</i> 127,644	<i>Tons</i> 87,446
Coal purchased.....	59,030	126,839	62,319

TELEPHONES AND TELEGRAPHS

The gross revenues from the operation of telephones, electric clocks, and electric printing telegraph machines were \$349,105.

During the year 1,424 telephones were installed and 915 were discontinued or removed, resulting in a net increase of 509 telephones for the year. At the end of the fiscal year there were 50 electric clocks and 29 automatic printing telegraph typewriters, in addition to the 5,482 telephones in service. Local and long-distance telephone calls handled through the automatic exchanges averaged 155,690 per day in 1943, and 152,038 in 1942 during the sample days tested. This represents an average number of calls per telephone per day of 28.4 in 1943 and 30.5 in 1942.

Considerable expansion of the underground distribution telephone system was made during 1943 to provide additional service for the existing towns. Contracts for the new 100-pair trans-Isthmian telephone cable and its accessories were awarded, and delivery on the Isthmus of the last few items of equipment was being made as the year ended.

REAL-ESTATE OPERATIONS

Real-estate operations of the Panama Railroad Co. are devoted to the management of the property owned by the company in the cities of Colon and Panama and buildings erected by the company in the Canal Zone. At the close of the fiscal year, 1,623 leases and 14 licenses were in effect covering the occupancy and use of Panama Railroad Co. properties in the cities of Panama and Colon. Transfer of certain lands authorized by joint resolution (Public Law No. 48, 78th Cong.), approved May 3, 1943, was pending at the close of the fiscal year.

During the fiscal year the railroad allowed a discount of 10 percent on rental accounts for properties which are leased at rentals based on reevaluations made in 1937, provided the accounts were paid within the first five working days of the month. A discount of 10 percent was also allowed on all accounts on which rental rates are based on the commercial valuation of properties in effect prior to the reappraisal, provided the accounts were paid within the period for which the bills were rendered. Those accounts covering all other properties rented at low rates under old leases were not allowed the reduction.

During the year 89 square meters of Panama Railroad land in Panama City not required for business purposes were sold.

COMMISSARY DIVISION

The primary function of the commissary division of the Panama Railroad is to supply at reasonable prices food, clothing, and household supplies to meet the needs of United States Government personnel and the various United States Government departments on the Isthmus. In carrying out this function the division operates wholesale warehouses and cold-storage plants as well as retail stores in each of the Canal Zone towns. Sales are restricted to agencies and personnel of the United States Government, except that ice, cold-storage food, and other essentials may be purchased by commercial steamships transiting the Canal or calling at its terminal ports.

SALES

Net sales for the year totaled \$46,948,042, compared with \$35,421,764 for the previous fiscal year. The value of merchandise on hand June 30, 1943, was \$6,168,745, compared with \$4,198,365 at the close of the fiscal year 1942. The ratio of sales to inventory indicates a theoretical stock turn-over of approximately once every 7 weeks. The distribution of sales for the past three fiscal years is shown in the following table.

	1943	1942	1941
U. S. Government (Army and Navy).....	\$19,379,638	\$12,245,622	\$5,480,257
The Panama Canal.....	4,932,976	4,303,862	2,269,830
The Panama Railroad Co.....	593,510	779,143	473,511
Individuals and companies.....	1,771,385	1,552,484	692,302
Commercial ships.....	737,061	543,996	361,276
Employees.....	22,486,611	18,297,702	11,775,824
Gross sales.....	49,901,181	37,722,809	21,053,000
Less discounts, credits, etc.....	2,953,139	2,301,045	1,297,812
Net sales.....	46,948,042	35,421,764	19,755,188

PURCHASES

Purchases during the year aggregated \$42,600,910, an increase of \$10,730,233 over the previous year. The following tabulation shows the value of the various classes of merchandise purchased for the past 3 years:

	1943	1942	1941
Groceries.....	\$8,716,892	\$8,769,410	\$4,068,968
Candy and tobacco.....	1,135,739	1,090,298	619,563
Housewares.....	1,513,607	1,489,100	943,995
Drygoods.....	5,591,027	3,000,521	1,997,314
Shoes.....	2,006,714	1,149,913	624,453
Cold storage.....	13,815,161	8,865,456	4,225,880
Raw materials.....	2,642,347	2,517,275	1,080,770
Cattle and hogs.....	1,140,892	892,131	370,457
Milk and cream.....	324,032	426,524	362,687
Dairy products.....	5,714,499	3,670,049	1,810,211
Total.....	42,600,910	31,870,677	16,104,298

HOTELS

The Hotels Tivoli and Washington were operated by the Panama Railroad Co. without change of policy during the year. These hotels are an essential adjunct to the Canal, providing necessary accommodations for foreign visitors, American tourists, visiting Government officials, and others.

The gross revenue from hotels was \$843,478, compared with \$712,445 in 1942, and the number of guest-days was 91,058, compared with 89,278 in 1942.

MINDI DAIRY

The operation of the Mindi Dairy continued as in the previous years. Milk production for the year was 425,077 gallons, compared with 540,758 gallons in the preceding year, a decrease of 115,681 gallons. Fresh milk is furnished the hospitals and, on doctors' prescriptions, to persons having preference, such as invalids, infants, and nursing mothers. The surplus remaining after these needs are met is supplied employees, units of the Canal and Railroad organizations and Army and Navy units stationed on the Isthmus.

SECTION III

ADMINISTRATION

DEPARTMENTS

The organization of The Panama Canal on the Isthmus embraces five principal departments, namely, operation and maintenance, supply, accounting, executive, and health. In addition to this, an office of The Panama Canal is maintained in Washington, D. C. The Panama Railroad Co., a Government-owned corporation conducting business enterprises on the Isthmus, is a distinct unit, yet it is closely affiliated with the Canal organization.

OPERATION AND MAINTENANCE

The department of operation and maintenance embraces functions related to the actual use of the Canal as a waterway, including the dredged channel, locks, dams, aids to navigation, accessory activities such as shops and drydocks, vessel inspection, electrical and water supply, sewer systems, roads and streets, hydrographic observations, surveys and estimates, and miscellaneous construction other than the erection of buildings.

SUPPLY

The supply department is charged with the accumulation, storage, and distribution of materials and supplies for The Panama Canal and Railroad; the maintenance and construction of buildings; the assignment of living quarters to employees and care of grounds; the operation of storehouses, fuel-oil plants, an experiment garden, and a printing plant; the supplying of motor transportation facilities to the various departments and divisions of the Canal and Railroad organizations; and the operation of messes for silver-roll contract labor.

ACCOUNTING

The accounting department is responsible for the correct recording of financial transactions of the Canal and Railroad; the administrative auditing of vouchers covering the receipt and disbursement of funds preliminary to the final audit by the General Accounting Office; cost keeping of the Canal and Railroad; the checking of timekeeping; the preparation of estimates for appropriations and the allotment of appropriations to the various departments and divisions; and the examination of claims.

EXECUTIVE

The Executive department embraces the office of the Governor and all general administrative activities. In this department are included the administration of police and fire protection, postal service, customs, shipping-commissioner duties, estates, schools, playgrounds, general correspondence and records for the Canal and Panama Railroad, personnel records and management, wage adjustments, general information, relations with Panama, and the operation of club-houses, restaurants, and moving-picture theaters.

HEALTH

The health department has jurisdiction over all matters pertaining to sanitation and public health within the Canal Zone and the cities of Panama and Colon, the operation of hospitals and dispensaries, and the enforcement of quarantine regulations.

PANAMA RAILROAD CO.

The operations of the Panama Railroad Co. on the Isthmus are related closely to the work of the Canal. As the Governor of The Panama Canal is president of the Panama Railroad Co., the heads of all departments, both of the Canal and Railroad organizations, report to him. The general administration of the composite organization is centered in the executive office, and the accounting work in the accounting department. The Panama Railroad and the business divisions of the Canal organization are billed for their proper shares of the general overhead expense.

CHANGES IN ADMINISTRATIVE PERSONNEL

Appointments in official positions during the fiscal year 1943 were as follows:

Mr. Arnold Bruckner was appointed comptroller, The Panama Canal on October 1, 1942, vice Mr. Wilson H. Kromer, retired.

Mr. Ira L. Wright was promoted to assistant comptroller on the Isthmus on October 1, 1942, vice Mr. Arnold Bruckner, promoted to comptroller, The Panama Canal.

Mr. Carl F. Chase was appointed assistant comptroller and chief accountant on October 1, 1942.

Surgeon Henry A. Holle was appointed chief quarantine officer on December 1, 1942, vice Surgeon Gregory J. VanBeek, relieved from duty with The Panama Canal.

Lt. Col. William Kraus, Medical Corps, United States Army, was appointed superintendent, Colon Hospital, on October 8, 1942, vice Col. A. R. Gaines, Medical Corps, United States Army, relieved from duty with The Panama Canal.

Col. Charles G. Holle, Corps of Engineers, United States Army, was appointed assistant engineer of maintenance on August 1, 1942, vice Col. Douglas L. Weart, Corps of Engineers, United States Army, relieved from duty with The Panama Canal.

Lt. Col. Ralph H. Sartor, Transportation Corps, Army of the United States, was appointed senior planning engineer in the Executive office on June 23, 1943.

Lt. Col. Hugh A. Kelly, Corps of Engineers, Army of the United States, was appointed military assistant to the Governor on March 15, 1943.

Mr. Edward I. P. Tatelman was appointed director of civilian defense on September 16, 1942, and reappointed magistrate, Cristobal, on May 16, 1943, when Lt. Col. Hugh A. Kelly, corps of engineers, Army of the United States, was appointed director of civilian defense in addition to his other duties.

Mr. Mercer B. Huff was appointed paymaster, The Panama Canal, on September 1, 1942, vice Mr. Clarence L. Bryan, retired.

Mr. Richard G. Taylor was appointed director of clubhouses on August 16, 1942.

Maj. Joseph H. Burgess, Jr., Air Corps, Army of the United States, was appointed administrative assistant in the Executive office on February 23, 1943.

Lt. Comdr. Alexander W. Weir, United States Naval Reserve, was appointed assistant to marine superintendent on March 13, 1943, vice Lt. Comdr. Robert L. Morris, United States Navy, relieved from duty with The Panama Canal.

Capt. Forrest M. O'Leary, United States Navy, was appointed captain of the port (Cristobal) on April 6, 1943, vice Capt. Charles E. Coney, United States Navy, relieved from duty with The Panama Canal.

Capt. Joseph M. Kiernan, United States Navy, was appointed superintendent, mechanical division, on July 13, 1942, vice Capt. Isaac I. Yates, United States Navy, relieved from duty with The Panama Canal.

Mr. Herbert H. Evans, assistant superintendent, mechanical division, was retired on April 30, 1943.

Mr. Edward F. Welch was appointed production superintendent, mechanical division, on December 1, 1942, vice Mr. William H. Stone, retired.

Col. Charles H. Barth, Jr., Corps of Engineers, United States Army, was appointed supervising engineer on September 10, 1942, vice Col. Hans Kramer, Corps of Engineers, United States Army, relieved from duty with The Panama Canal.

Mr. Edwin E. Abbott was appointed supervising engineer on November 24, 1942, vice Col. Charles H. Barth, Jr., Corps of Engi-

neers, United States Army, relieved from duty with The Panama Canal.

Lt. Col. LeRoy A. Kane, Corps of Engineers, Army of the United States, was appointed assistant to general manager, Panama Railroad Co., on July 17, 1942.

CHANGES IN ADMINISTRATIVE ORGANIZATION

SECTION OF CIVILIAN DEFENSE

Effective December 1, 1942, a section of civilian defense was established, comprising all full-time employees whose principal duty is civilian defense work. The enrolled volunteer members of the civilian defense organization comprise the Civilian Defense Corps. This section has supervision of the organization, training, equipping and functioning of the Civilian Defense Corps, as well as generally preparing the civilian population of the Canal Zone to meet the emergencies that might be expected to arise in the event of an enemy attack.

EMPLOYEES

The force employed by The Panama Canal and the Panama Railroad Co. is composed of two classes which for local convenience have been designated "gold" and "silver" employees. The terms "gold" employees and "silver" employees originated during the construction period of the Canal from the practice of paying common laborers and other unskilled or semiskilled workers employed in the Tropics in silver coin, while skilled craftsmen and those occupying executive, professional, and similar positions were paid in gold coin, the latter group being recruited largely from the United States. Although all employees are now paid in United States currency, the original terms used to designate the two classes of employees have been retained for convenience. The terms "gold" and "silver" are applied also to quarters, commissary clubhouse, and other public facilities.

The gold employees—that is, those carried on the gold pay roll—are, with a few exceptions, citizens of the United States and comprise those employees who are engaged in the skilled trades, and in the executive, supervisory, professional, subprofessional, clerical, and other positions where education, training, and special qualification are required. The force of silver employees is composed almost entirely of natives of the Tropics, a considerable number of whom are Panamanians. The force of silver employees is composed principally of laborers, helpers, and semiskilled workers who perform work which does not require the services of specially trained or qualified persons.

Panama Canal employees are divided, therefore, into two general classes, one of which comprises United States citizens, and the other principally native tropical labor. These two classes are carried on

separate pay rolls and the conditions of employment applicable to each differ materially. The division of labor between the two classes of employees is a matter of long custom in tropical countries, and Panama Canal practice conforms to this general custom.

Responsibility for personnel administration in The Panama Canal is vested in the division of personnel supervision and management, Executive department. The division's activities are separated into "gold" and "silver" in accordance with the customary classification of employees of The Panama Canal.

GOLD EMPLOYEES

The distribution of the gold personnel on June 2, 1943, and June 3, 1942, is shown in the following tabulation:

	June 2, 1943	June 3, 1942	Increase	Decrease
THE PANAMA CANAL				
Accounting department.....	304	322		18
Dredging division.....	477	469	8	
Assistant engineer of maintenance:				
Electrical division.....	419	439		20
Locks division.....	278	287		9
Municipal engineering division.....	581	815		264
Office engineering division.....	176	264		88
Meteorology.....	10	12		2
Executive department:				
Executive offices.....	311	349		38
Bureau of posts.....	177	162	15	
Civil affairs and customs.....	59	50	9	
Panama canal clubhouses.....	182	201		19
Collector.....	19	20		1
Fire protection.....	119	67	52	
Magistrate courts.....	7	9		2
Paymaster.....	18	19		1
Police and prisons.....	368	311	57	
Schools.....	170	211		41
Fortifications.....	3	3		
Health department.....	655	575	80	
Marine division.....	208	221		13
Mechanical division.....	1,755	1,015	740	
Special engineering division.....	380	905		525
Supply department:				
Offices, building.....	28	31		3
Building.....	235	311		76
District quartermaster.....	46	47		1
Experiment gardens.....	27	33		6
Fuel-oil plants.....	41	38	3	
Motorcar repair shop.....	105	103	2	
Motor transportation.....	192	223		31
Panama Canal press.....	17	19		2
Storehouses.....	170	117	53	
Subsistence.....	17	20		3
Total, the Panama Canal.....	7,554	7,698	1,019	1,163
PANAMA RAILROAD CO.				
Railroad proper.....	186	235		49
Receiving and forwarding agency.....	172	184		12
Commissary.....	412	399	13	
Dairy farms.....	6	6		
Hotels.....	19	19		
Real estate.....	8	9		1
Total, Panama Railroad Co.....	803	852	13	62
Total force.....	8,357	8,550	1,032	1,225

The fiscal year was characterized by a peak of employment, reached in August 1942 at which time 8,775 employees were on the gold-rolls. In general, peak employment continued over a period of several months, but by the close of the fiscal year the long anticipated downward trend in employment had begun as indicated by a total force of 8,357. This was occasioned partially by the completion of a number of projects, a heavy decrease in the special engineering division forces, and a reduction in force ordered by the Bureau of the Budget as a result of an extension of the work-week to 48 hours for virtually all classified and noncraft employees who for the greater part previously had worked 42 hours weekly. The principal decreases have been in those divisions dealing with construction projects as follows: Special engineering division, decrease of 525 employees or 58 percent; municipal engineering division, decrease of 264 employees or 31 percent; office engineering division, decrease of 88 employees or 33 percent; and building division, decrease of 76 employees or 24 percent. More moderate curtailment occurred in other divisions, reflecting the general trend toward reduction of activity on the Canal Zone which came with cessation of work on the third locks and completion of other construction projects.

The large decreases mentioned above were very nearly neutralized by a sharp increase in the number of employees of the mechanical division. Increased demands for marine repair and other work involving skilled craftsmen account for the addition to that division of 740 employees during the fiscal year 1943. The increase is approximately 73 percent of the number employed in June 1942. Increases on the rolls of the health department are accounted for by the opening of new hospital wards, staffing a new hospital, and the inauguration of an intensive program for the control of venereal disease. The 80 new employees added to the health department during the fiscal year 1943, represent 14 percent of the 1942 roll. The police section was increased by 57 employees, most of whom were added to the force for the purpose of providing police protection to newly created civilian towns and camps under the jurisdiction of the United States Army. The increase of 52 employees for fire protection was for the purpose of providing a skeleton force to man 11 additional fire stations opened in the regular towns. The increase of 53 employees in the storehouses reflects a replacement of alien clerks with American citizens on the gold roll.

RECRUITING AND TURNOVER OF FORCE—GOLD EMPLOYEES

The following table shows additions to and separations from the gold force in the fiscal year from July 1, 1942, to June 30, 1943.

Employments are classified as made in the United States or on the Isthmus, and separations are classified by cause:

Gold force	Operation and maintenance	Executive	Supply	Health	Accounting	Panama Railroad Co.	Total
Employed or reemployed in the United States	1,185	309	154	178	23	112	1,961
Employed or reemployed on the Isthmus	407	249	96	92	19	71	934
Total additions	1,592	558	250	270	42	183	2,895
Resigned	1,239	333	225	157	54	192	2,200
Retired:							
Age	35	4	4	2	5	3	53
Disability	17	5			3	2	27
Voluntary	5	2	2		3	1	13
Died	25	2	1	2	2	2	34
Discharged:							
Reduction of force	436	14	25	8			483
Expiration of temporary employment	19	25	52	13		3	112
Cause	89	64	28	8		22	211
Other reasons	72	60	3	42	2	7	186
Total separations	1,937	509	340	232	69	232	3,319

NOTE.—The above figures do not include 188 employments made on a part-time basis and 137 terminations of part-time employees; neither does it include 6 employments of citizens of the United States on the silver roll and 10 terminations of citizens of the United States on the silver roll.

The Panama Canal:		The Panama Railroad Co.:	
Additions	2,712	Additions	183
Separations	3,087	Separations	232
Net separations	375	Net separations	49

Based on an average aggregate gold force of 8,487 for the year, the 3,319 separations from all causes, shown in the foregoing table, represent a turn-over of 39.11 percent. This is higher than that of fiscal year 1942 by 6.46 percent and is believed to be the highest rate of turn-over experienced by The Panama Canal organization since the original construction period. When discharges by reason of expiration of temporary employment are excluded the turn-over rate is 37.78 percent for 1943 as compared with 31.16 percent for 1942; and when the separations due to reduction of force are also excluded, the rate for 1943 is 32.09 percent; 1942 rate was 30.23 percent.

Employment of 3,089 new employees was effected by appointments tendered through the Washington office or made locally on the Isthmus. Inasmuch as only the mechanical division showed a substantial increase in number of employees, the major employment activity was one of replacement necessitated by the high rate of terminations throughout the fiscal year. All employees appointed in the States during the year were transported to the Isthmus via airplane. In the first half of the period congestion of airline facilities occasioned much delay in departure from the United States, but by the end of the year the situation had improved to the extent that little delay was experienced on that account. During June several employees arrived by

plane from New Orleans on the newly inaugurated run. No difficulties are anticipated in the transportation of employees to the Isthmus during the next year.

ADJUSTMENTS IN WAGES AND HOURS OF WORK

Effective July 8, 1942, an adjustment was made in the rates of pay for positions in The Panama Canal and Panama Railroad Co. which are based on rates of pay for similar and related positions in the United States navy yards. Adjustments in rates of pay for more than 200 occupational groups were authorized which increased the compensation of approximately 3,000 employees of The Panama Canal and Panama Railroad Co. Two overtime compensation laws were enacted during the fiscal year which affected the compensation of Panama Canal and Panama Railroad Co. employees. All classified and monthly craft employees, as well as many noncraft (but unclassified) employees were affected thereby. The mandatory provisions of the law required the establishment of appropriate rates of pay for a 40-hour work week with overtime compensation for hours worked in excess of that, or compensatory time off in lieu of overtime pay. Appropriate rates of pay, based upon recommendations made by the wage board, were approved for various groups of employees of The Panama Canal and the Panama Railroad Co.

On January 1, 1943, the workweek was extended to 48 hours per week for virtually all classified and nonclassified employees. On that date a total of 2,897 Panama Canal and Panama Railroad employees, principally classified, were working an authorized workweek of not more than 42 hours. As a result of the increase in hours of work all but approximately 155 employees are now working at least a 48-hour workweek. The average workweek for the entire Panama Canal service at the close of the fiscal year is well above 48 hours per week.

SILVER EMPLOYEES

The numbers of employees on the silver roll by departments and divisions of The Panama Canal and Panama Railroad Co. as shown on force reports for June 1942 and June 1943, are given in the following tabulation. These summaries generally cover the number of employees on the specific days on which the force reports were compiled (the first Wednesday of the month), and are fairly representative, although in some divisions the number of employees at work may change by several hundred within a short time, according to variations in the demand for hourly rated labor. The summary shows only those at work on June 3, 1942, and June 2, 1943.

	June 2, 1913	June 3, 1942	Increase	Decrease
THE PANAMA CANAL				
Accounting department ..	7	5	2	
Dredging division ..	2,510	2,504	6	
Assistant engineer of maintenance:				
Electrical division ..	575	709		134
Locks division ..	815	792	23	
Municipal division ..	3,408	4,771		1,363
Office engineer ..	119	146		27
Meteorology ..	21	25		1
Executive department:				
Executive offices ..	78	83		5
Bureau of posts ..	42	40	2	
Civil affairs and customs ..	4	2	2	
Panama Canal clubhouses ..	1,723	1,698	25	
Magistrates' courts ..	2	2		
Paymaster ..	2	3		1
Police and prisons ..	62	57	5	
Schools ..	231	194	40	
Health department ..	1,880	1,712	168	
Marine division ..	613	502	111	
Mechanical division ..	2,268	1,742	526	
Special engineering division ..	78	187		109
Supply department:				
Offices, chief quartermaster ..	6	6		
Building division ..	2,735	3,801		1,066
District quartermasters ..	692	689	3	
Experiment garden ..	455	494		39
Fuel-oil plants ..	67	65	2	
Motorcar repair shop ..	137	134	3	
Motor transportation ..	512	524		12
Panama Canal press ..	154	166		12
Storehouses ..	798	731	67	
Subsistence ..	408	617		239
Total, the Panama Canal ..	20,408	22,431	985	3,008
PANAMA RAILROAD CO.				
General manager ..	699	798		99
Receiving and forwarding agency ..	1,419	1,796		377
Commissaries ..	3,415	3,314	101	
Dairy farm ..	107	121		14
Hotels ..	242	223	19	
Real estate ..	3	3		
Total, Panama Railroad Co. ..	5,885	6,255	120	490
Total force ..	26,293	28,686	1,105	3,498

A net decrease of 2,393 silver employees in 1943 from those on the rolls in 1942 is indicated in the table; this represents a drop of 8.34 percent of the 1942 total. Leading factors in this decline were decreases in the numbers of employees carried in the municipal division, building division, the subsistence section, and in the electrical division, which can be attributed entirely to the completion of important features of the construction programs on the Isthmus. Partly offsetting these reductions are increases to be found in the mechanical division, increased by 526 or 30 percent of total 1942 employees, and in the health department, increased by 168 or 10 percent. The increase in the mechanical division follows the increase in gold employees in the general expansion of that division. The opening of new wards in Canal Zone hospitals and intensification of sanitation and health

programs in the zone and in Panama accounts for the necessity of the health department increase in employees. The decrease of 377 employees in the receiving and forwarding agency of the Panama Railroad Co. and the increase of 111 employees in the marine division both represent merely fluctuations in the day-by-day demands for hourly labor.

SILVER WAGES

Wages of employees on the silver roll bear no direct relationship to wages of corresponding classes of workers in the United States. As silver-roll employees are for the most part natives of the Tropics, their wage scales are established at levels based on wages prevailing for tropical labor in the Caribbean area.

The maximum authorized rates of pay for employees in each occupational group were increased by \$7.50 per month, \$0.30 per diem or \$0.03 per hour, effective January 1, 1943, for the duration of the present emergency. The number of Executive order positions permitting the payment of wages in excess of \$960 per year or \$0.40 per hour was increased from 200 to 400 on October 1, 1942, for the period the Executive order remains in effect.

SICK AND REST LEAVE

Rest leave for silver employees was authorized by Circular 602-33 issued June 12, 1942, which revised the regulations pertaining to sick leave and authorized rest leave for alien employees not otherwise entitled to vacation leave privileges providing they have 5 years or more of continuous service and an excess of 30 days sick leave to their credit. Sick leave is earned at the rate of $1\frac{1}{4}$ days per month. A total of 25,050 sick leave payments were authorized during the fiscal year, as compared with 25,979 during the previous year. A total of 1,783 rest leave payments were authorized under the new rest leave program.

CASH RELIEF FOR DISABLED SILVER EMPLOYEES

Applications for relief under the act of Congress of July 8, 1937, were received during the fiscal year 1943 at an average rate of 9 per month. The original system established during the latter part of the fiscal year 1938 for administering this program remains basically without change. A few minor restrictive regulations have been adopted, however, to insure adherence to the intent of the act in its strictest sense.

The tables below show the disposition of all applications from employees of both The Panama Canal and the Panama Railroad Co.

during fiscal year 1943. The gross and net amounts of the pay rolls are also indicated:

Applications	Panama Canal	Panama Railroad	Total
Applications on hand, July 1, 1942	8	4	12
Applications received during period	75	35	110
Applications approved for payment	59	29	88
Applications suspended for various reasons		-1	-1
Applicants died before relief approved	3	1	4
Applications rejected for various reasons	1		1
Applicants ineligible because of limitations of the act	11	7	18
Applications not complete but in various stages of progress	9	3	12
Total	83	39	122

NOTE.—Removal from the rolls on account of the death or subsequent reemployment of cash-relief recipients: Panama Canal 50; Panama Railroad 20.

Total and average costs during fiscal year 1943 were as follows:

	Number of cases	Monthly average payment per case	Monthly pay roll as of June 30, 1943
Panama Canal rolls	416	\$18.28	\$7,604
Panama Railroad Co. rolls	160	19.22	3,075
Total	576	18.75	10,679

Expenditures on behalf of the Panama Canal cash-relief program are paid from annual allotments for that purpose, while those of the Panama Railroad Co. constitute a continuation of the former system of granting cash relief to the superannuated employees of that company and are made from Panama Railroad funds.

REPATRIATIONS

Under an act approved in 1934, an appropriation of \$150,000 was provided for the purpose of repatriating unemployed West Indians and their families who have rendered at least 3 years service with the United States Government or the Panama Railroad Co. on the Isthmus. During the fiscal year 1943 approximately \$1,735 was expended for repatriation and rehabilitation of 26 former employees, accompanied by 19 members of their families, a total of 45 persons. To date a grand total of \$58,147 has been expended for repatriation of 789 employees accompanied by 707 members of family, a grand total of 1,496 individuals. The average cost per person for repatriation has been \$38.87, and the average cost per employee \$73.70.

CENTRAL LABOR OFFICE

The Central Labor Office program of The Panama Canal provides for eligibility control over applicants seeking employment with government agencies and private contractors operating on the Isthmus. The

general tapering off of employment activities is demonstrated by the comparative figures presented below, showing the total numbers of silver employees carried on the rolls of the various organizations as of June 1942 and June 1943.

	June 1943	June 1942
Panama Canal and Panama Railroad	28,339	32,018
Panama Canal contractors	158	966
Panama Canal Department (Army)	5,248	3,891
Army Service Exchanges	985	688
Division Engineer (Army)	11,410	11,918
Division Engineer contractors	2,235	4,175
U. S. Navy	3,026	1,669
U. S. Navy contractors	7,432	9,410
Public Roads Administration	124	1,051
Total	58,957	65,786

Because of the insufficient supply of qualified labor on the Isthmus, recruitment of contract workers from foreign countries continued throughout the fiscal year 1943, chiefly for the purpose of replacements. El Salvador was again the principal source of recruited workers this year, and the recruiting office there was the only foreign recruiting office of The Panama Canal still operating at the close of the fiscal year. The Jamaican office was closed during the last quarter of the year.

From the inception of the foreign recruiting program in 1940, a total of 18,327 contract workers have been brought to the Isthmus. Of this number, 9,434 have been repatriated, leaving, as of June 30, 1943, a total of 8,893 still on the Isthmus. The following table shows figures for the different areas from which the workers were recruited:

	Number recruited	Number repatriated	Number remaining on Isthmus June 30, 1943
Colombia	2,244	1,783	461
Costa Rica	2,248	1,777	471
El Salvador	8,835	3,754	5,081
Jamaica	5,000	2,120	2,880
Total	18,327	9,434	8,893

PURCHASE OF WAR SAVINGS BONDS BY EMPLOYEES

A plan for the purchase of United States War Savings bonds by pay-roll deduction was approved by the Treasury Department on May 23, 1942, and was put into effect on July 1, 1942. As of June 30, 1943, 7,436 employees were purchasing bonds under this plan. Ninety-two percent of the eligible employees were participating in this pay-roll deduction purchase plan, and subscriptions were equivalent to 14.58 percent of the gross pay roll. To meet an insistent demand by em-

ployees for over-the-counter sales of bonds, facilities were also provided for making cash sales of bonds in the Administration Building, Balboa Heights, and at Gorgas Hospital, Ancon. In addition, a procedure has been established whereby such purchases can also be made at the various Canal Zone post offices with delivery within 2 or 3 days. Actual cash purchases, however, have not been commensurate with the anticipated demand, and the pay-roll deduction plan continues to be the most convenient and practicable plan yet devised.

EXPERIMENT GARDENS

The Canal Zone plant introduction gardens and experimental station were established in June 1923. The gardens, which include greenhouses, nurseries, and experimental plantings, embrace approximately 125 acres of land, and are devoted to the propagation and cultivation of a wide variety of useful and ornamental plants from all parts of the world, primarily for the purpose of determining their adaptability and value under local soil and climatic conditions, for general propagation on the Isthmus.

During the year the regular long range experimental work at the gardens was continued. Further tests were carried on during the rainy season with varieties of vegetables which had proved successful in the previous year's experiments, most of which were made during the dry season. Normally, it is very difficult to grow many types of vegetables during the rainy season when beating rains, occurring almost daily, crush the tender plants to the ground. Once the plants pass the juvenile stage the rains are usually not as injurious but the humidity and dampness make a perfect setting for the growth of the myriads of fungi spores which are waiting to attack the plants. Good results were obtained with several varieties of tomatoes, approximately 90 percent of the plants reaching maturity. Good success also was obtained from a variety of string bean (Striped Creaseback), several varieties of radishes, eggplant, okra, and summer squash. Experimental plants were made of four varieties of soybean, with one variety (Seminole) proving superior to the others in both vigor and productiveness. A variety of hybrid field corn was tested against the native field corn of Panama, with the former proving superior although growth of the stalks was not equal to the native corn.

Extensive investigations were made during the year on the papaya (*Carica Papaya*) which is native to tropical America although the exact location of the origin is not known. A report covering an investigation of pasture blight was received during the year from the pathologist, Division of Sugar Plant Investigations, Bureau of Plant Industry, United States Department of Agriculture. This inves-

tigation was conducted in the pastures near Puerto Armuelles, Republic of Panama.

During the year a small sales store to handle fruits and house plants was opened in Balboa by the experiment gardens. This was done as a convenience to the public since tire and gasoline rationing presented a difficult transportation problem to and from the gardens which are located some miles from the centers of population. The store was opened just prior to Christmas, and orders were taken for artificial Christmas trees and wreaths for delivery during Christmas week. Emphasis was placed on these items as it was felt that they would most nearly supplement items which recently arrived employees would miss at that season of the year, and which, due to transportation difficulties, could not be brought in from the United States. Large 6 to 12-foot trees were made to meet the needs of civic units such as churches, U. S. O. clubs, post exchanges, and hospitals.

Camouflage and landscape work was performed in connection with the United States Army construction program. Landscape work also was carried forward in the new towns of Diablo Heights, Cocoli, and Margarita.

CLUBHOUSES

The Panama Canal clubhouses, which are operated on a self-supporting basis, comprise activities designed to provide at reasonable rates restaurant and recreational facilities for Government personnel and their families. These activities, particularly the restaurants, have undergone considerable expansion during the current period of construction and war activity on the Isthmus. Since a large percentage of the personnel brought to the Isthmus to engage in construction activities have necessarily come without their families the problem of feeding them has devolved largely upon the clubhouses. Further, the clubhouse facilities are used extensively by members of the armed forces stationed on the Isthmus.

All of these factors have resulted in much overcrowding in all the clubhouses, particularly in the larger ones located in the terminal areas of Balboa and Cristobal. To meet the situation it has been necessary to enlarge the restaurants in a number of clubhouse buildings.

Although it is possible that the present increased demand has made it necessary to expand the restaurant facilities beyond normal needs in some cases, these can at relatively small cost be altered to permit of economical operation with reduced patronage after the current expansion program has subsided. In the event that surplus space is thereby made available it will be utilized for other purposes.

During the fiscal year 1943 the total revenues of the clubhouses increased about 44 percent over the preceding year and were about seven times those of recent years which may be taken as normal.

Over 60 percent of the business was in the restaurants, the balance coming from merchandise sales (tobacco, candy, etc.), from motion pictures, and from miscellaneous other services of the clubhouses, such as swimming pools, bowling, and billiards. Effective March 1, 1943, the administration of clubhouses built for the third locks construction was transferred from the special engineering division to the Panama Canal Clubhouses.

LEGISLATION

Among the laws enacted by the Congress during the fiscal year 1943 which relate to or apply in the Canal Zone, or affect The Panama Canal, and which are of importance or interest, are those described below.

An act approved July 29, 1942, Public Law 687, Seventy-seventh Congress, amended the Canal Zone Code retirement provisions so as to adopt appropriate provisions of Public Law 411, Seventy-seventh Congress, approved January 24, 1942, which amended the Civil Service Retirement Act.

An act approved October 1, 1942, Public Law 725, Seventy-seventh Congress, amended the Canal Zone Code in relation to the control of marihuana.

An act approved December 2, 1942, Public Law 784, Seventy-seventh Congress, (a) amended the Defense Base Act of August 16, 1941, so as to extend the provisions of the Longshoremen's and Harbor Workers' Compensation Act to contractors' employees and employees in military or naval areas in the Canal Zone, and (b) provided compensation benefits for contractors' employees in the case of injury, death, or detention resulting from war-risk hazards or enemy action.

An act approved December 11, 1942, Public Law 797, seventy-seventh Congress, cited as the Opium Poppy Control Act of 1942, provided for the control of the production and distribution of the opium poppy and its products, and was made expressly applicable to the Canal Zone.

An act approved December 22, 1942, Public Law 821, seventy-seventh Congress, extended to April 30, 1943, the then existing authority to pay overtime compensation to certain employees and also extended said authority so as to cover generally all civilian employees of the Government compensated on a monthly or annual basis, including substantially all gold-roll employees of the Canal-Railroad organization who were not previously entitled to overtime compensation subject to the provisions that such overtime should be computed on that portion of the employee's basic pay not exceeding \$2,900 or that the basic compensation plus overtime of the employee should not exceed \$5,000 per annum.

An act approved May 7, 1943, Public Law 49, seventy-eighth Congress, effective May 1, 1943, authorized the payment of overtime compensation to Government employees on substantially the same basis as the act of December 22, 1943, to which reference is made above, with the exception that the \$5,000 limitation contained in the act of December 22, 1943, was eliminated and some changes were made in the computation of overtime and additional compensation in the cases of part-time, intermittent, and irregular employees. This act will terminate on June 30, 1945, or such earlier date as Congress may prescribe.

CAPITAL ALLOTMENTS, FISCAL YEAR 1944

The appropriations for 1944 carried \$517,800 for improvements and betterments and for the replacement of worn-out or excessively deteriorated facilities as follows:

Improvements and additions, Corozal Hospital.....	\$109, 800
Launches for Marine Division.....	43, 000
Filling area between Panama Railroad tracks and Gaillard Highway, Balboa roundhouse to Curundu River.....	90, 000
Field office, distribution shop, and storage area, electrical division, Cristobal.....	75, 000
Quarters for interns and residents, Gorgas Hospital.....	80, 000
Additional oil lines on piers, Cristobal.....	120, 000
Total.....	\$517, 800

Improvements and additions, Corozal Hospital.—The two boilers which supplied steam necessary for kitchen, laundry, and other hospital operations at Corozal Hospital have been declared unfit for service and must be replaced. The old frame structure in which the boilers are now housed would require extensive rebuilding before it could be used to house the new boilers, and so it has been considered more economical to build a new structure than to attempt to remodel the existing one. Of the funds appropriated in this item, \$48,300 will be used for purchase and installation of replacement boilers and construction of a new boiler house.

As a result of the encroachment on dining-room space the past few years, some 200 patients must be fed in wards; this condition is extremely unsatisfactory, inasmuch as the hospital is not equipped to serve meals there. Of this appropriation \$39,500 is to be used for construction of a new building for office and related activities of the hospital, thereby restoring the dining room to its original capacity of 312 seats.

It is necessary to house the attendants on the hospital grounds in order to have the hospital force immediately available in the event of an emergency. As present facilities are inadequate, some of the male

attendants have been housed in wards with the patients, while some of the female attendants must live away from the hospital. In order to correct these conditions, a new quarters building to cost \$22,000 will be provided for the female attendants and the space relinquished by them will be assigned to the male attendants presently living in the hospital wards.

Launches for Marine Division.—This appropriation provides for the replacement of two Marine Division launches which are now so deteriorated that they cannot be removed from the water for routine bottom cleaning because their hulls are too weak to withstand support ashore. Increased wartime activity in Canal waters, in addition to regular launch transportation for the quarantine, postal, customs, and other personnel involved in shipping activities, requires that the Marine Division fleet be kept working 24 hours a day, with minimum interruption for necessary service and upkeep.

Fill area between Panama Railroad tracks and Gaillard Highway, Balboa roundhouse to Curundu River.—Suitable ground for necessary extension of both closed and open storage made necessary for the materials and supplies required by Army, Navy, and Canal units on the Pacific side is to be provided by the continuation of this reclamation program, begun in 1937.

Field office, distribution shop, and storage area, electrical division, Cristobal.—In order to provide buildings and yard space of such size that the various units of the electrical division at Cristobal may perform their several functions adequately, this appropriation provides for the construction of a plant at Mount Hope at a graded area where water and sewer lines have already been installed.

Quarters for internes and residents, Gorgas Hospital.—With the enlargement of military garrisons and the expansion of Army, Navy, and Canal activities, it became necessary to re-occupy, for their original purpose, the reserve wards which had been used to house internes and resident attendants of the hospital. This appropriation provides for the construction of housing facilities for these employees immediately adjacent to the hospital, thus insuring their availability in the event of emergency situations.

Additional oil lines on piers, Cristobal.—The importance of adequate bunkering facilities at Canal Zone docks has greatly increased since the declaration of war, just as has the necessity for making the fullest possible use of all vessels by obviating avoidable delays. Funds in this appropriation are to be used to provide outlets for bunkering both fuel oil and Diesel oil at all berths, thus making available these vitally important facilities.

SECTION IV

GOVERNMENT

The civil government of the Canal Zone is conducted as prescribed in the Panama Canal Act of August 24, 1912, and subsequent acts and Executive orders made applicable to the Canal Zone. Whenever practicable, governmental functions have been assigned to departments in the organization established for the operation and maintenance of the Canal. Complete cooperation and increased efficiency are derived from such coordination of functions.

Data on expenses and revenues of various features of the Canal operation and Government are contained in the financial and statistical statement in section V of this report.

AREA OF THE CANAL ZONE

The total area of the Canal Zone,¹ with areas segregated for various purposes, is shown as of June 30, 1943:

	<i>Square miles</i>
Land area of the Canal Zone.....	362. 01
Water area of the Canal Zone (inclusive of Madden Lake to ± 260-foot contour).....	190. 94
 Total area of the Canal Zone.....	 552. 95
<hr/>	
Land areas, military and naval reservations (inclusive of revocable- license area):	
Military reservations.....	87. 20
Naval reservations.....	11. 80
Land areas, Canal Zone townsites, and areas in active use (exclusive of Army and Navy posts).....	15. 26
Barro Colorado Island.....	5. 71
Forest preserve.....	5. 47
Swamps.....	15. 16
Cattle pastures.....	41. 80
Commercial leases.....	. 51
Third locks project.....	. 72
Usable land.....	178. 38
 Total land area as above.....	 362. 01

¹ Not inclusive of noncontiguous areas, with the exception of Paitilla Point military reservation.

POPULATION

A house-to-house canvass of the civil population of the Canal Zone was made by the police force during the month of June 1943. This canvass included employees of the Army and Navy, and members of families of Army and Navy personnel, but omitted the commissioned, warrant, and enlisted personnel. The following is a summary of the population by districts:

	Americans			All others			Total
	Men	Women	Children	Men	Women	Children	
Balboa district	8,932	4,528	2,792	14,859	3,329	3,481	37,921
Cristobal district	2,263	934	793	8,465	2,904	3,919	19,218
Prisoners	24			219	6	2	251
Total Inhabitants June 1943	11,159	5,462	3,585	23,543	6,239	7,402	57,390
Total Inhabitants June 1942	11,384	5,078	3,379	21,995	6,273	7,372	55,481

The total of 57,390 inhabitants for June 1943 represented an increase of 1,909, or 3.4 percent, over the 1942 figure. The civil population is at a very high level at the present time, being about double that of 4 years ago. The present high figure results from the large influx of persons to work on emergency projects of the Army, Navy, and Panama Canal. The increase has been particularly marked in men in the "all other" group in the table above; these men comprise contract laborers imported from countries in the adjacent Caribbean area. As these laborers will be repatriated to their native lands at the expiration of their contracts and as many of the Americans will leave the Isthmus at the completion of the work for which they were engaged, the large increase in population is of a temporary nature.

In addition to the above, 1,466 American employees (475 men, 514 women and 477 children) were residing in Government quarters in New Cristobal in the Republic of Panama in June 1943.

PUBLIC HEALTH

General health conditions in the Canal Zone and in the terminal cities of Panama and Colon in the Republic of Panama have remained unchanged for the past few years. There were no epidemics of communicable diseases excepting an outbreak of mumps, principally in the city of Panama and, to a lesser extent, in the Canal Zone.

Margarita Hospital which was opened in June 1942 gradually increased its activities during the year. Two additional 25-bed wards were constructed at section E, Gorgas Hospital, and two additional 25-bed wards at Colon Hospital. At Corozal Hospital an 80-bed ward building was constructed. All of these additions were occupied during the year.

Although four first-aid stations were closed due to cessation or completion of work on various construction projects, two new stations were placed in operation—one in the mechanical division area, Balboa, in October, and the other at Mount Hope, in April, to provide first-aid treatment for the large number of employees working in these areas.

During the period October 1942 to April 1943, 30,356 persons were given a complete series of typhoid inoculations. In July the sum of \$19,050 was advanced by the Coordinator of Inter-American Affairs and in October the sum of \$108,100 was advanced by the Federal Works Agency, for the purpose of establishing a venereal disease control program in the Canal Zone and Panama. In addition, two clinic buildings—one at Colon Hospital and one at Gorgas Hospital—were constructed from funds provided by the Federal Works Agency in connection with the Venereal Disease Control Program.

During June 1943, the quarantine station at the port of Balboa was moved from its former location in vicinity of Fort Amador to the new buildings which had been constructed in the vicinity of Corozal Hospital.

A program for the control of *Aedes aegypti* in Panama City was initiated in November and the progress being made warrants the establishment of similar programs for the Canal Zone and the city of Colon.

VITAL STATISTICS

The morbidity and mortality rates from diseases and injuries and other vital statistics relating to the population of the Canal Zone and the cities of Panama and Colon, are set forth in detail in the calendar year report of the health department, which is published annually in booklet form. For this reason, only a few tables are included in this report, and the data pertaining to vital statistics are limited to a brief résumé of death rates, birth rates, and infant mortality rates. Statistics relating to military personnel are omitted in the tables following.

General death rate.—The death rate for the Canal Zone is artificially low because employees generally leave the Isthmus after retirement, and prior to 1941 a large number of relatively young soldiers were included in the population figures on which the rates were computed. Below are shown death rates by yearly periods for the past 5 years:

Calendar year	Death rate per 1,000 population—all causes				
	1942	1941	1940	1939	1938
Canal Zone.....	1 6.24	1 8.57	6.43	6.32	5.79
Panama City.....	10.62	11.43	11.50	11.93	12.36
Colon.....	12.13	15.00	11.04	11.57	16.03

¹ Omits Army and Navy personnel.

Principal causes of death.—The eight principal causes of death in each of the groups of population were as follows:

	Number of deaths and annual rate per 1,000 population— calendar year 1942					
	Canal Zone		Panama City		Colon	
	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
Organic diseases of the heart	55	0.99	132	1.06	74	1.57
Pneumonia	25	.45	133	1.06	62	1.32
Nephritis (acute and chronic)	23	.41	110	.88	43	.92
Cancer of various organs	20	.36	71	.57	35	.75
Apoplexy	18	.33	67	.54	38	.81
Tuberculosis	14	.25	240	1.92	88	1.87
Syphilis	12	.22	37	.30	18	.38
Diarrhea and enteritis	3	.05	71	.57	14	.30

Birth rate.—Prior to the last 2 years the Canal Zone white birth rate as shown in the statistics was artificially low, since a large number of Army and Navy enlisted men were included in the population figures used in computation of the rate. Also, the colored population included a high proportion of employees in the older age group, as only colored employees with more than the average length of service are able to secure assignment to quarters in the Canal Zone. The birth rates for both classes in the calendar years 1942 and 1941 are not directly comparable with those for prior years as shown in the table below. For the white population, as previously explained, this is due to the fact that the population figures for the calendar years 1942 and 1941 do not include Army and Navy personnel. The colored population has been inflated by the influx of laborers without their families, imported for construction work. The following table shows the birth rates in the Canal Zone and the terminal cities of Panama and Colon for the past 5 years:

Calendar year	Live birth rate per 1,000 population				
	1942	1941	1940	1939	1938
Canal Zone:					
White	123.08	124.75	8.98	7.51	7.96
Colored	13.07	15.80	19.24	14.00	14.48
Combined	16.65	19.10	12.56	10.76	10.94
Panama City	30.38	29.60	28.09	28.34	34.64
Colon	27.38	27.20	25.41	25.02	30.46

¹ Population base excludes Army and Navy personnel.

Death rates among children under 1 year of age.—The following table shows the infant mortality rates per 1,000 births for the past 5 years:

Calendar year	Death of infants under 1 year of age per 1,000 live births				
	1942	1941	1940	1939	1938
Canal Zone:					
White	22	51	40	31	5
Colored	53	61	69	87	58
Combined	38	56	56	65	37
Panama City	79	89	94	91	78
Colon	79	97	98	77	99

MALARIA

The rates for malaria among employees only for the past 10 years are shown below:

Calendar year	Rate per thousand	Calendar year	Rate per thousand
1933	27	1938	10
1934	16	1939	14
1935	15	1940	17
1936	12	1941	14
1937	12	1942	25

There were three deaths from malaria among employees during the past year.

HOSPITALS

The number of patient days in Panama Canal hospitals for the past three fiscal years has been as follows:

	Fiscal year		
	1943	1942	1941
Gorgas Hospital	427, 455	386, 563	299, 815
Corozal Hospital:			
Insane	107, 886	96, 050	84, 796
Cripples and chronic medical and surgical cases	34, 744	33, 212	33, 326
Colon Hospital	46, 049	44, 019	42, 647
Margarita Hospital	18, 269	495	
Palo Seco Leper Colony	42, 288	43, 529	46, 103
Total	676, 691	603, 868	506, 687

QUARANTINE AND IMMIGRATION

The increase in air traffic from all directions during the past year necessitated continued vigilance to prevent the introduction into the Canal Zone of yellow fever, typhus fever, and other dangerous quarantinable diseases. No cases of these diseases were encountered among air passengers although the voyage of one passenger was interrupted on account of typhoid fever and several others were detained until a determination could be made of the nature of their infections. Quarantine procedure in connection with aircraft will be carried out

with increased efficiency with the opening of the new air terminal in July of this year.

Three cases of cerebrospinal meningitis were removed from vessels passing through the Canal. No other cases of quarantinable diseases were encountered during the year.

The jungle type of yellow fever continues to be endemic in several countries of South America. All planes arriving from such areas were thoroughly sprayed and the temperatures of passengers and crew members were recorded upon arrival.

An increase in the incidence of typhus fever in certain parts of Mexico and Guatemala was observed during the past several months. While the prevalence of this disease in the Western Hemisphere does not approach the problem which exists in Eurasia and Africa, The Panama Canal is exercising vigilance to prevent its introduction here.

In spite of the decrease in shipping, a sizable increase occurred in the number of fumigations of vessels in the Canal Zone.

Immigration procedures during the past year were revised to improve our permanent records. On June 1, 1943, the Balboa Quarantine Station was moved to its new location at Corozal. The old location at the entrance to the Canal was leased to the Fifteenth Naval District for the duration of the war. Personnel of the armed services were excluded from civilian immigration records and departure control clearances for such personnel were discontinued March 13, 1943.

The following is a summary of transactions for the fiscal year 1943, together with the figures for the two preceding years:

	Fiscal year		
	1943	1942	1941
Vessels inspected and passed	2,844	3,923	5,853
Vessels granted pratique by radio		36	165
Total	2,844	3,959	6,018
Crew passed at quarantine	146,537	205,136	287,640
Crew passed by radio		7,251	42,873
Passengers passed at quarantine	50,823	112,196	113,834
Passengers passed by radio		375	2,332
Total	197,360	324,958	446,679
Airplanes inspected and passed	2,525	1,619	1,154
Crew of airplanes inspected and passed	11,090	6,601	5,021
Passengers of airplanes inspected and passed	33,623	20,837	10,799
Total	44,713	27,438	15,820
Vessels detained in quarantine	2		
Crew detained in quarantine on board ship	105		
Passengers admitted to station on account of quarantine laws	1		
Number of detention days at station on account of quarantine laws	1		
Immigration cases admitted to station	5,331	6,256	1,792
Number of immigration detention days	73,751	60,739	20,009
Persons held for investigation and released	96	655	815
Persons deported under immigration laws	4,819	5,798	2,369
Supplementary inspection of vessels	3,560	3,337	4,087
Vessels fumigated	68	45	42

MUNICIPAL ENGINEERING

Municipal work carried on during the year included the construction and maintenance of roads, streets, sidewalks, and the maintenance and operation of water and sewer systems, and miscellaneous construction jobs. In the past few years, there has been a large increase in the amount of construction work performed by the municipal engineering division of The Panama Canal for the Army and Navy, private contractors, and for The divisions of The Panama Canal and Panama Railroad Co. Only the major items of this work are covered in this report, although the aggregate value of the large number of smaller items runs into many hundreds of thousands of dollars.

TESTING LABORATORY

A well-equipped laboratory was maintained for the making of chemical and bacteriological analyses of water, chemical analyses of different materials, concrete tests for selection of suitable aggregates for concrete, tests to determine the stability of different materials and supplies for Canal uses, the issuance of permits for work in the holds of ships and oil tanks, soil and permeability tests, etc.

During the year the testing laboratory carried on a variety of work, making a total of 10,156 tests in connection with 8,618 varied samples. This included 927 tests on water and 5,923 on concrete for various purposes. Other tests were made on building materials, petroleum products, various metals, etc., while inspections were made of swimming pools, ships, tanks, etc.

WATER SYSTEM

Consumption of water for municipal uses during the past 3 fiscal years was as follows:

	1943	1942	1941
	<i>Gallons</i>	<i>Gallons</i>	<i>Gallons</i>
Canal Zone.....	7,980,664,000	6,568,125,550	4,696,732,000
City of Panama.....	2,666,519,000	2,432,916,000	2,133,841,000
City of Colon.....	1,191,134,000	1,014,392,000	976,076,000
Sales to vessels.....	201,627,298	193,650,000	208,407,000
Total.....	12,039,944,298	10,209,083,550	8,009,056,000

The following statement shows the quantity of water pumped at each of the pumping stations during the year, average per month, and the cost of pumping per thousand gallons:

Pumping station	Total gallons pumped during year	Average gallons per month	Average cost per 1 000 gallons for pumping
Gamboa (Intake)	4, 779, 396, 000	398, 283, 000	\$0. 009966
Miraflores (relay)	3, 147, 558, 000	262, 297, 000	. 013660
Balboa (relay)	4, 160, 059, 000	346, 671, 000	. 005340
Paraiso (Intake)	3, 087, 549, 000	257, 296, 000	. 053600
Paraiso (relay)	193, 774, 000	16, 148, 000	. 028800
Miraflores Lake (Intake)			
Mount Hope (Intake)	3, 439, 818, 000	286, 652, 000	. 013280
Agua Clara (Intake)	825, 576, 000	68, 798, 000	. 078349
Monte Lirio (Intake)	1, 168, 000	97, 000	. 504263
Frijoles (Intake)	3, 535, 000	294, 000	. 537240
Total	19, 638, 433, 000	1, 636, 536, 000	

A small filtration plant was operated at Madden Dam to supply water for users in that locality. A total of 19,990,000 gallons were filtered and distributed. Raw water for this plant is pumped from Madden Lake.

Omitting the water which was repumped from the total listed above, 12,137,042,000 gallons of raw water, an average of 33,252,000 gallons per day, were pumped by the municipal water system during the past fiscal year. All pumps are electrically driven except those at Frijoles, Monte Lirio, and Agua Clara which are driven by gasoline engines.

The usual maintenance work was performed on the pipe lines, reservoirs, filtration plants, and pumping stations during the year. In addition, regular maintenance work was performed on a number of special projects.

EXPANSION OF WATER SUPPLY FACILITIES

Work on the expansion of water supply facilities as described in the annual reports for 1941 and 1942 was carried forward to practical completion during 1943. The total expenditure on this expansion of the water facilities will be approximately \$4,170,000, which is being financed by The Panama Canal, Army, and Navy. The enlarged water system increases the rated water capacity from 15,500,000 gallons per day to 23,000,000 gallons per day on the Pacific side, and from 10,500,000 gallons per day to 14,500,000 gallons per day on the Atlantic side.

On the Pacific side of the Isthmus the principal work accomplished during the year on this water supply program included the completion of the Gamboa raw water pump station; a new intake structure at Gamboa to permit the most efficient use of the new pumps; and completion of the Miraflores filtration plant and pump station, including the purchase and installation of pumps, switchgear, flucculators, and

modification of the existing buildings. For two new reservoirs on the Army posts of Fort Clayton and Albrook Field there were installed during the 1943 telemark instruments and motor-operated valves to facilitate operation of the water system by remote control, with the necessary 12-inch water lines involved. On the Atlantic side of the Isthmus, work was confined to two principal projects, namely (a) installation of a 30-inch cast-iron pipe and the construction of a new raw water intake on Gatun Lake, to provide a supplementary source of raw water for the Mount Hope filtration plant and to augment the present supply to provide the necessary raw water to meet the demands of activities on the Atlantic side of the Isthmus; and (b) the alteration and extension of the Mount Hope filtration plant and pump station. The 2,500,000-gallon reservoir at Fort Gulick, which was 80 percent complete at the end of the fiscal year 1942, was completed early in 1943, and has been in operation as a part of the Atlantic side water system for almost a year. A separate 20-inch cast-iron pipe line was laid from the reservoir to the Mount Hope pump station, and special pumps and switchgear were incorporated in the changes made in the Mount Hope pump station, to provide for such operation.

SEWER SYSTEM

In addition to the regular maintenance work performed on the sewer system, the principal special project completed during the year was the installation of the Colon Beach intercepting sewer, which involved the construction of sump, installation of motors and electrical equipment, and construction of a discharge line.

ROADS, STREETS, AND SIDEWALKS

In addition to the regular maintenance work performed on roads, streets, and sidewalks in the Canal Zone, a number of special projects were carried out during the year. Aside from road work performed under the annual Panama Canal allotments, the Bureau of Public Roads furnished \$1,326,700 for the construction of five highways: Gaillard Highway relocation, Corozal-Diablo Road, an express highway between Ancon and Balboa, Coral Road at Mount Hope, and Diversion and Randolph Roads. Three of these roads were completed by the end of the fiscal year 1943, while two (the express highway between Ancon and Balboa and the Diversion-Randolph Roads) will be finished during 1944. A description of the work performed follows:

Gaillard Highway relocation.—This project involved relocating and paving a section of Gaillard Highway from a new junction with Madden Road, just north of the underpass beneath the Panama Railroad, to the south approach apron of the Gamboa Bridge, a distance of $6\frac{1}{4}$ miles. The pavement consists of a reinforced concrete

slab, 22 feet in width. Construction of this road which had been started in May 1942 was 6 percent complete at the beginning of the fiscal year 1943. The highway was opened to traffic on April 15, 1943, and construction was entirely completed on April 30, 1943.

Corozal-Diablo Roads.—This is a 20-foot-wide concrete road parallel to Gaillard Highway on the west of the Panama Railroad tracks which was constructed to relieve the traffic congestion on Gaillard Highway. As a result of traffic surveys it was decided to establish one-way traffic north-bound on Gaillard Highway from Diablo Crossing to the post of Corozal, and one-way traffic south-bound on the new road between these same points. This scheme has proved to be very effective in reducing traffic congestion at the Diablo Crossing-Gaillard Highway intersection.

Express Highway (Ancon to Balboa).—This is to be a 30-foot concrete road located on the south side of the Panama Railroad tracks from Tivoli Crossing 4,100 feet westward to a tie-in with the Corozo Street crossing in Balboa. When completed the road will relieve the traffic congestion at Tivoli Crossing, by diverting the Balboa traffic through the new highway, and will eliminate the necessity for the use of Gaillard Highway by Balboa-Panama City traffic. This project was authorized on May 4, 1942, but due to material restrictions, work was not started until May 1943.

Reconstruction of Coral Road, Camp Bierd.—This project consisted of rebuilding 1,150 lineal feet of road, using an 18-foot reinforced concrete slab. The road was built at the request of the United States Navy to afford access into the naval base at Mount Hope.

Reconstruction of Randolph and Diversion Roads.—This project consists of the complete repaving of Diversion Road from the ball field at Margarita to the intersection with Randolph Road, using a reinforced 8-inch-thick 20-foot-wide slab, and complete repaving of Randolph Road from Fort Randolph to France Field, using 8-inch-thick 30-foot slab.

In addition to the above, a major road project consisting of the construction of a concrete road to replace a narrow and winding portion of Bruja Road, located on the west side of the Canal, was carried to completion during the year. This project involved the relocation and paving with concrete 1.04 miles of Bruja Road from the Naval Ammunition Reservation to Nicobar Avenue in Cocoli townsite. The relocation required the construction of a new bridge over the Velasquez River. The funds for this project were furnished by the United States Army.

TOWNSITE DEVELOPMENT

The construction of townsites started during previous years as a result of the increase in population brought about by extensive con-

struction activity was continued to near completion during the year. Municipal engineering work consisted of grading, construction, and maintenance of roads and sidewalks, installation of water and sewer systems and drainage. The following principal areas and sites were further developed: Margarita, begun in 1939 to provide additional living quarters for gold personnel for third locks construction; Cocoli gold townsite, located on the west side of Canal, begun in February 1940; Cocoli silver townsite, located one-half mile north of Cocoli gold townsite, also begun in February 1940; and Diablo Heights townsite, the largest of the third locks towns, begun in July 1939:

Municipal work was completed during the year for a new immigration and quarantine station at Corozal, in addition to that for several quarters buildings at Balboa, constructed to replace quarters in the former quarantine area which was taken over by the Navy.

OTHER HEAVY CONSTRUCTION ACTIVITIES

Several major dock construction projects were handled during the year, including the new Mindi dock which replaces an old dock removed to provide for the third locks channel at Gatun; a 335-foot extension to dock No. 15, Cristobal; the extension and improvement of the lighthouse dock at Gatun; and the reconstruction of dock No. 13, Mount Hope.

At the request of the Public Roads Administration, the Municipal Engineering Division constructed nine bridges between the towns of Chorrera and Rio Hato, Republic of Panama. The work consisted of the erection of the structural steel, the construction of reinforced concrete decks, and the installation of steel railings.

Construction of a new dynamite and powder magazine at Summit, authorized in July 1942, was complete at the end of the year with the exception of a few small items. The work consisted of the construction of two fuse houses, two magazines, watchman's shelter, access roads, a spur track from Panama Railroad main line, storm drains and water lines.

Work on the construction of new ferry slips at Thatcher Ferry, begun in the previous fiscal year, was completed in 1943. The new slip on the west bank consists of an all-wood structure of creosoted piles and timbers, while the slip on the east side of the Canal consists of 12 concrete piers with timber racks suspended from them. Work on the west slip was complete at the end of 1942, while the east slip, which was 25 percent complete at the beginning of that year, was completed in 1943.

CITIES OF PANAMA AND COLON

Regular maintenance work was performed on the water and sewer systems and the streets during the year. The most important project

in 1943 was the paving of Justo Arosemena Street in Colon, with reinforced concrete for a length of six blocks between Fourth and Fifteenth Streets.

MISCELLANEOUS PROJECTS

Sosa Hill quarry and rock crushing plant.—Three hundred and seventy-six thousand, six hundred and sixty-three cubic yards of rock were crushed during the fiscal year 1943 and sold to various departments and divisions of The Panama Canal, Panama Railroad Co., United States Army and Navy, contractors and individuals. This plant also produced amiesite for resurfacing old roads and the construction of new roads and driveways. During the year 20,222 tons of this material were produced and sold.

Central mixing plant.—A central concrete plant, consisting of a three-compartment, 110-ton batching plant, was placed in operation by the municipal engineering division in 1943. During the 8 months the plant was in operation, approximately 33,500 cubic yards of ready-mixed and dry-batched concrete were furnished to various divisions of The Panama Canal and to the Army, Navy, and Panama Canal contractors.

Concrete pipe plants.—Plants were operated both at Ancon and Cristobal for the manufacture of concrete pipe and half-section drain tile. During the year 18,427 lineal feet of pipe of various sizes, and 18,180 lineal feet of 14-inch plain and reinforced half-section drain tile were manufactured. This pipe is used chiefly by the municipal engineering division for sewer and drain pipe, but a considerable quantity is sold to the Army, Navy, Republic of Panama, and local concerns.

RIGHT-HAND DRIVE ESTABLISHED ON ISTHMUS

The Canal Zone traffic laws and regulations were amended on April 1, 1943, making effective on April 15 a change from left-hand to right-hand driving on Canal Zone streets and highways. The change was made simultaneous with that in the Republic of Panama where a decree was issued directing the change in that country. The accepted explanation of the origin of left-hand driving on the Isthmus is that it was established by British West Indian carromata drivers who came to the Isthmus in early construction days. These drivers, accustomed to English left-hand driving in their native islands, popularized it on the Isthmus. It is said that left-hand driving was legalized by the late Francisco de la Ossa at the time he was mayor of Panama City in the early 1900's.

ISTHMIAN HIGHWAYS OFFICIALLY OPENED

Coincident with the establishment of right-hand driving on the streets and highways of the Canal Zone and Republic of Panama on April 15, 1943, the Trans-Isthmian Highway between the two ter-

minal areas of the Canal and between Panama City and Colon in the Republic of Panama, was officially opened to the public. This highway was formed by building a 22-mile section between the existing Madden Highway and the Atlantic terminal area. While the new section of highway was virtually completed at the end of the fiscal year 1942, it was restricted, prior to its official opening, to authorized official use.

Another new highway also was opened on April 15, 1943. This was a section from Madden Dam to Gamboa, known as the Gaillard Highway Relocation. This new road is $6\frac{1}{4}$ miles in length, and replaces a narrow and winding road which had been in use many years.

PUBLIC ORDER

During the fiscal year 9,858 persons were placed under arrest by the Canal Zone police, a decrease of 1,435, or 12.7 percent, in comparison with the previous year, when 11,293 arrests were made. This decrease in the number of arrests is attributed largely to fewer violations of the traffic and vehicle regulations which declined from 5,543 in 1942 to 4,244 in 1943, a decrease of 1,299. This sharp decline is evidently a direct result of less driving by private automobile owners because of tire and gasoline rationing. Statistics covering these arrests, with corresponding figures for the previous year, are given in the following table:

	1943	1942
Male.....	<i>Persons</i> 9,488	<i>Persons</i> 10,925
Female.....	370	368
Total.....	9,858	11,293
Arrests made with warrants.....	1,006	1,150
Arrests made without warrants.....	8,852	10,143
Total.....	9,858	11,293
Residents of the Canal Zone.....	4,295	4,956
Residents of Panama.....	4,898	5,291
Transients.....	665	1,046
Total.....	9,858	11,293

There were 10,481 charges filed against persons arrested during the fiscal year 1943, of which 10,075 were misdemeanors and 406 were felonies, the latter being 3.87 percent of the total offenses charged. Following were the principal causes of arrest:

Cause of arrest	1943	1942	Cause of arrest	1943	1942
Violation of vehicle-traffic regulations.....	4,244	5,543	Disturbing the peace.....	623	605
Loitering.....	925	878	Intoxication.....	487	504
Violation of immigration regulations.....	717	919	Battery.....	385	457
Violation of war-emergency regulations.....	705	546	Disorderly conduct.....	332	413
Petit larceny.....	540	609	Fugitives from justice.....	228	299
			All others.....	1,295	1,293
			Total.....	10,481	12,066

The persons arrested included nationals of 75 countries and territories and were engaged in 233 different trades and professions. Six cases of homicide were investigated by the Coroner during the year, three of which were the result of automobile-traffic accidents. In these cases six offenders were brought to trial on the charge of "involuntary manslaughter." One defendant was given a 6 months' jail sentence; one was sentenced to 30 days in jail and fined \$250, with the jail sentence suspended and the person placed on probation for 1 year; one was fined \$100; one was given a 2-year suspended penitentiary sentence, placed on 3 years' probation and fined \$100; and two cases were dismissed.

During the year the coroner investigated 6 cases of suicide as compared with 2 in the previous year. Of these suicides 4 were from hanging, 1 by drowning, and 1 by discharge of firearm. Coroner's investigations were made in 144 cases of death during the year, of which 26 were due to vehicle injuries, 25 from natural causes, and 38 from accidental drowning.

A daily average of 105 prisoners served sentences in the jails of the Canal Zone during the year, and all of those physically able were employed on the maintenance of road repairs and other municipal improvements; others were employed on janitor and miscellaneous work at police and fire stations and at target ranges. The total value of jail labor for the year is evaluated at \$33,687.15.

Ninety-one convicts were committed to the Canal Zone penitentiary during the year, an increase of 13 compared with the preceding year; sentences imposed totaled 197 years, 9 months. Seventy-three convicts were discharged, as compared with 51 discharged during the previous year. At the close of the year 115 convicts remained in custody, as compared with 97 at the end of the preceding year. The convicts were employed during the year on road and municipal improvement work; improving and clearing penitentiary grounds; maintaining prison buildings; manufacturing and repairing prison clothing; and the cultivation of fruits, vegetables, etc., on the penitentiary farm. The total value of fruits, vegetables, and other products of the penitentiary farm amounted to \$9,817.99 as compared with \$8,885.88 in the previous year.

During the year 49 persons were deported from the Canal Zone by order of the Governor. Of this number 33 were convicts who had served sentences in the penitentiary and 16 were persons who had been convicted of misdemeanor charges or who were otherwise deemed undesirable persons to be permitted to remain in the Canal Zone.

There were 1,049 traffic accidents, an average of 87 per month, reported during the year, as compared with 1,395 traffic accidents, a monthly average of 116, in the previous year. These accidents resulted in the death of 20 persons and injuries to 385 persons, of whom

126 were pedestrians. This represents a decrease of 4 in the number of deaths and 96 in the number injured in comparison with the previous fiscal year.

Following is a classification of the causes of these accidents for the years 1943 and 1942:

Cause	1943	1942	Cause	1943	1942
Negligent driving.....	604	781	Inexperienced driver.....	18	70
Reckless driving.....	206	311	All other.....	49	51
Careless pedestrian.....	95	99			
Intoxicated driver.....	45	39	Total.....	1,049	1,395
Defective vehicles.....	32	44			

The harbors of Balboa and Cristobal, the Chagres River, the Canal in the vicinity of Gamboa, Gatun Lake, and Madden Lake area were patrolled throughout the year, principally for the enforcement of the navigation laws and for the prevention of smuggling and irregular traffic. During this period motor launch patrol officers arrested 13 persons, 12 of whom were on the charge of violating the navigation regulations. During the course of the year police officers on monthly patrols of the interior or rural sections of the Canal Zone made 19 arrests, as follows: One for committing a public nuisance, 1 for disorderly conduct, 2 for carrying firearms without a permit, 2 for battery, 2 for malicious mischief, 5 for petit larceny, 2 for possession of marihuana, 3 for trespassing, and 1 for returning to the Canal Zone after deportation.

Detectives effected 598 arrests, and made 1,678 investigations to obtain information in criminal cases; in addition, inquiries were made in 1,034 cases involving lost property and other matters not involving violations of laws.

FIRE PROTECTION

During the year 290 fires, 60 false alarms, and 10 emergency calls were reported. The following table lists the owners on whose property these fires occurred and the extent of losses suffered during the year, compared with the previous year:

	1943		1942	
	Number of fires	Property loss	Number of fires	Property loss
The Panama Canal.....	144	\$178,744	173	\$6,577
Panama Railroad Co.....	26	1,263	22	2,712
U. S. Army.....	21	90,678	5	202
U. S. Navy.....	8	17,267	7	5,046
Private.....	91	13,932	49	338,942
Total.....	290	301,884	256	353,479
Total property involved.....		10,879,112		7,120,779

On August 19, 1942, at approximately 5:30 a. m., a United States Navy PBY patrol bomber crashed into the Panama Canal tug *Alhajuela* at a point in Manzanilla Bay approximately 650 yards west of the Coco Solo Mole. This crash resulted in damages to the tug estimated at \$175,000.

A large fire occurred at Corozal on April 15, involving a partially completed cold-storage warehouse under construction by contractors for the United States Army. The loss sustained in this fire amounted to approximately \$50,000, the largest part being represented by the insulating materials, which were totally destroyed. Only slight damage was sustained by the side walls of the building or by the small portion of the refrigerating machinery which had been already installed.

During the fiscal year 1943, 11 new fire stations were established—7 in the Balboa District and 4 in the Cristobal District. In October 1942, 30 auxiliary trailer pumps were placed in operation throughout the Canal Zone; these pumps are manned by volunteer firemen who make up the 30 auxiliary trailer pump volunteer companies in the Canal Zone.

MAGISTRATES' COURTS

BALBOA

In the magistrate's court for the subdivision of Balboa, 27 civil and 6,007 criminal cases were handled, whereas 5,896 cases were handled during the previous year. Of the criminal cases, 5,398 resulted in conviction, 297 in acquittal, 114 were dismissed and 198 were held for the district court. In 197 cases imposition or execution of sentence was suspended and the defendants were placed on probation. Of this group 12 were rearrested for violating the terms of probation and were returned to serve the sentence originally imposed. Total revenues collected were \$35,970.66.

CRISTOBAL

In the magistrate's court for the subdivision of Cristobal, 13 civil and 3,341 criminal cases were handled, whereas 4,672 cases were handled in the previous year. Of the criminal cases 3,002 resulted in conviction, 179 in acquittal, 60 were dismissed, and 100 were held for the district court. In 204 cases imposition or execution of sentence was suspended and the defendants were placed on probation. Of this group 12 were rearrested for violating the terms of probation and were returned to serve the sentence originally imposed. Total revenues collected were \$24,695.45.

PARDONS AND REPRIEVES

The pardon board, consisting of 5 members, is appointed by the Governor and acts in an advisory capacity. During the year, the pardon board submitted recommendations to the Governor with reference to 55 applications for executive clemency, including pardon,

commutation of penitentiary and jail sentences, and withholding and revocation of orders of deportation, and the Governor extended clemency in 26 of these cases. No changes were made in the personnel of the board during the year.

PUBLIC SCHOOL SYSTEM

The public school system for white children includes nine elementary schools, grades 1 through 6; one junior high school, grades 7 and 8; one junior-senior high school; one senior high school; one apprentice school; and one junior college. Public schools for colored children include one elementary school, kindergarten through grade 6; one elementary school, kindergarten through grade 8; five elementary-junior high schools, kindergarten through grade 9; and one teacher-training normal school.

After a decrease in enrollment brought about by the evacuation of families of men in the armed forces, which characterized enrollment trends during the school year 1941-42, enrollments in the white elementary and secondary schools had reached approximate stability at the time the schools opened in September 1942. At that time, 2,817 pupils were enrolled in the elementary and secondary white schools. In June 1943, this figure was 2,733, a drop of slightly under 3 percent.

In the colored schools the enrollment decreased from 3,138 in February 1942, to 3,016 in February 1943, a loss of 122. Free school privileges are granted to children of silver employees of The Panama Canal and Panama Railroad Company, only when such employees reside in the Canal Zone.

For the past 5 years the average daily attendance has been as follows:

	1943	1942	1941	1940	1939
White schools.....	2,632	3,144	3,296	2,798	2,686
Colored schools.....	2,783	2,804	2,725	2,686	2,818

NOTE.—This tabulation excludes enrollment in the Canal Zone junior college.

Junior college regular and special daytime students numbered 78 in September and 46 in June. The college extension division, designed for adult education, recorded 1,212 class enrollments in night classes between October 1 and June 1. The extension program for adult education has become an important part of the educational services offered the community by the Canal Zone junior college.

A total of 162 apprentices were enrolled in the apprentice school during the year ending June 30. Of these, 28 completed their training during the year, and 134 were still in training as of June 30. During the school year 1942-43, the white schools, not including the apprentice school, were in session 177 days and the colored schools, 228 days.

At the close of school in June, 120 white teachers and 112 colored teachers were in regular employment in the above schools.

Section A of the Balboa high school-Canal Zone junior college group of buildings was completed during the final days of the fiscal year 1942, but was not occupied completely until September 1942. The building was intended for full utilization by the Balboa high school, but decreased high-school enrollment made it possible to assign a portion of the structure to the junior high school classes. The rooms vacated by junior high school pupils were put to use as storerooms and now provide much needed storage space. The full occupation of section A made possible the transfer of all Balboa elementary school children from the east Balboa annex and the lodge hall annex to the old Balboa high school.

With the opening of the second war-time school year, plans were laid to adapt secondary school curricula and activities to needs made apparent by the war. Preinduction courses were introduced in a number of fields, including electricity, automotive mechanics, machines, and aeronautics. The Victory Corps was organized in the high schools and served as a focus of student activities. Two special 1-year curricula in commerce and engineering were established in the junior college to be effective during school year 1943-44. These courses were designed to give intensive preparation for service in essential wartime activities. Vocational emphasis in the colored junior high schools was continued, with particular expansion of equipment and program in agriculture and related fields.

Canal Zone white children continued to achieve above, and colored children below, United States norms provided for the standard tests used in the schools. In grades 2 to 8, the average white pupil was 7 school months above and the average colored pupil was 10 school months below the average child of the United States in the 10 subject fields of the Stanford Achievement Tests administered in April. In the white high schools, the average pupil scored at the sixty-ninth percentile on norms provided for each of 16 cooperative tests administered at the close of school.

PLAYGROUND SECTION

The activities of the playground section are not confined to the physical and athletic curricula of the schools. They also include supervised play and recreational activities for the employees of the Canal Zone and for military and naval personnel stationed on the Isthmus. This section promotes and supervises such activities as physical education, playground activities, baseball, basketball, handball, football, tennis, boxing, fencing, archery, athletic meets, and other phases of recreational activity. This section is maintained by appropriated funds. The appropriation for playground activities covers the salaries of physical directors and directresses, kindergarten

teachers, and playground attendants, and also provides funds for the maintenance of playgrounds, play sheds, baseball and softball diamonds, tennis courts, running tracks, and similar facilities, and for the purchase of playground and physical education equipment. Some of the recreational activities are partially self-supporting, but they cannot be made wholly so without greatly curtailing their scope and thus lessening the benefits now being derived through their extensive use.

In addition to the physical education program, the physical instructors and other personnel employed in the playground section conduct kindergartens for children of Government employees and furnish active leadership and guidance to such organizations as the Boy Scouts, Girl Scouts, Sea Scouts, etc.

The recreational facilities provided by the playground section are used extensively, not only by the civilian employees and their families, but also by the United States defense forces stationed on the Isthmus. Practically all facilities are now utilized to their capacity at all times. The cost of these physical and recreational facilities is more than repaid in increased efficiency and morale of the organization and in improved general welfare and health of the entire Canal Zone population. There is ample justification for the continuation of reasonable expenditures such as have been made in the past.

POSTAL SYSTEM

Twelve post offices were in operation at the end of the fiscal year 1943, as compared with 23 at the end of the previous fiscal year. This decrease was brought about by the inauguration on July 1, 1942, of the Army Postal Service which took over during the course of the year the post offices located in the various Army posts. Canal Zone postal facilities also were suspended at two naval stations during the year, and operation of these was assumed by the United States Navy. A Canal Zone post office was opened at Camp Chiva on August 1, 1942, as a branch of the Pedro Miguel post office.

Operations for the past year are summarized and compared with the preceding year in the following table:

	Fiscal year	
	1943	1942
RECEIPTS		
Sale of air-mail postage.....	\$411,806	\$506,838
Sale of all other postage stamps, postal cards, stamp books, etc.....	124,423	423,277
Money order fees.....	62,261	85,970
Box rents collected.....	33,310	33,502
All other receipts.....	27,253	19,762
Total receipts.....	659,053	1,069,349
EXPENSES		
Transportation charges for air mail.....	406,535	912,585
All other charges and expenses.....	443,320	413,053
Total expenses.....	849,855	1,325,638
Net deficit.....	(190,802)	(256,289)

An apparent deficit of \$190,802 resulted from operations in the fiscal year 1943, as compared with a deficit of \$256,289 for the fiscal year 1942. The deficits were largely the result of the special rate of 6 cents per half ounce on air mail authorized to all members of the United States Army, Navy and Marine Corps. This special rate was placed in effect in January 1942, without a corresponding reduction in the transportation rate for air mail and was suspended in the Canal Zone on May 6, 1943. The estimated loss to the Canal Zone postal service for the entire period the 6-cent rate was in effect amounted to \$303,214.65. The United States Post Office Department was requested to make an adjustment in connection with this loss and allowed \$225,082.70. In arriving at this adjustment the Post Office Department reduced the transportation rate on air mail prepaid at the 6-cent rate from \$6.90 to \$3.16 per pound. Calculations made by the Bureau of Posts indicate that revenue amounting to only \$2.44 per pound was received on this class of mail and, therefore, a further adjustment has been requested in the amount of \$78,131.95.

As the result of the establishment of Army and Navy post offices, the volume of air mail decreased during 1943 as compared with the previous year. Transportation charges decreased from \$687,501.93 (after deducting the adjustment of \$225,082.70 allowed by the United States Post Office Department) to \$406,535.03, a net decrease of \$280,966.90, or approximately 41 percent.

Statistics relative to the operation of the Canal Zone postal system are presented in the following table:

	1943	1942
Registered and insured articles dispatched:		
Official letters and parcels registered free	73,690	78,038
Foreign registered letters	67,100	52,950
Foreign registered parcels	218	440
Domestic registered letters	32,016	51,993
Domestic registered parcels	250	147
Insured parcels	10,755	18,748
Total registered and insured articles dispatched	184,029	202,316
Registered and insured articles received:		
Registered articles	119,120	157,223
Insured parcels	81,256	171,779
Foreign parcel post	2,077	2,860
Total registered and insured articles received	202,453	331,862
Dispatches of mail by steamer—Cristobal:		
Dispatches made to the United States	87	266
Dispatches made to foreign countries	686	1,131
Total dispatches made by steamer	773	1,397
Dispatches received from United States	81	339
Dispatches received from foreign countries	490	883
Total dispatches received by steamer	571	1,222
Dispatches of mail by steamer—Balboa:		
Total dispatches made	439	1,105
Total dispatches received	745	1,106
Dispatches of mail by air—Balboa:		
Total dispatches made	16,633	15,181
Total dispatches received	14,896	11,519

AIR MAIL

Daily service to and from Miami and Brownsville was continued throughout the year, as well as to and from the east and west coasts of South America. A triweekly service from Central America was inaugurated on September 21, 1942, and a triweekly service to and from New Orleans was inaugurated on June 13, 1943. A total of 94 scheduled arrivals and departures of mail planes are handled each week at Balboa, C. Z., as compared with 56 arrivals and departures per week in the previous year.

RELATIONS WITH PANAMA

In pursuance of the terms of a certain agreement concluded in Washington, D. C., in May 1942 between the Governments of the United States and Panama, the Congress of the United States on May 3, 1943, enacted a Joint Resolution (Public Law 48, 78th Cong.), the effects of which are substantially as follows:

The Joint Resolution authorized the President to transfer to the Republic of Panama all the right, title, and interest of the United States in and to the water and sewerage systems installed by the United States in the cities of Panama and Colon, with the proviso that pending the establishment of an independent water-supply system, and so long as Panama should desire to utilize the supply of water from the Canal Zone, it should pay quarterly to the Canal Zone authorities the rate of B/0.09 per one thousand gallons or such other reasonable rate as might be agreed upon by both Governments, and with the further proviso that the turning over to Panama of the physical properties of the systems and the administration thereof, including the collection of the water rates, would not in any way modify the existing arrangements in respect to responsibility for the public health services of the cities of Panama and Colon as specified in the second paragraph of article VII of the 1903 Convention between the United States and Panama.

The Joint Resolution, further, authorized the Panama Railroad Co. to convey to Panama all its right, title, and interest in and to so much of the lands of the Panama Railroad Co. in the cities of Panama and Colon as, in the opinion of the Secretary of War, are no longer needed for the operation of the Panama Railroad or for the operation, maintenance, sanitation, or defense of the Canal; with the proviso that any such instruments of conveyance should contain a provision under which the Panama Railroad Co. agrees to fully protect the Government of the United States against any claims for damages or losses heretofore or hereafter incurred by any lessee of any of the lands covered by such conveyance, and that the authority conferred by the Joint Resolution in this respect should be exercised after June 30,

1944; and with the further provision that any conveyance of any land in pursuance of the authority contained in the Joint Resolution should be deemed to release any and all reversionary rights of the United States in said property.

Following the enactment of the Joint Resolution preparatory steps toward the effectuation of the transfers therein authorized were inaugurated.

The Joint Resolution, further, authorized to be appropriated the sum not to exceed \$2,700,000, to enable the Secretary of the Treasury to pay to the Republic of Panama an amount equivalent to the principal and interest paid by that Government on account of the credit of \$2,500,000 made available to it by the Export-Import Bank for the construction of Panama's share of the Chorrera-Rio Hato Highway, and to pay to the Export-Import Bank an amount sufficient to liquidate the remaining obligation of the Republic of Panama to that bank on account of the aforesaid credit.

IMMIGRATION VISAS

During the fiscal year 1943, 80 visas were issued by the executive secretary to alien residents of the Canal Zone traveling to the United States. Of these, 7 were quota immigration visas, 14 were passport visas, 56 were nonquota visas, and 3 were transit certificates. Fees collected for visas amounted to \$647.75.

CUSTOMS

As a result of the entrance of the United States into the war, the Bureau of Customs has assumed responsibility for the enforcement of the many additional restrictions placed upon travel and the movement of cargo, mail, and currency. These additional duties cover the restrictions of the act of July 2, 1940 (Export Control), the restrictions of the President's Proclamation of July 17, 1941 (Proclaimed List), and the various restrictions directed against enemy nationals set forth in Executive Order 8389 of April 10, 1939, as amended, and in the Trading with the Enemy Act of 1917. The Bureau of Customs has assumed the duties of enforcement in the Canal Zone of all restrictions which in the United States are handled by the Department of the Treasury. This work involves examination of both incoming and outgoing baggage and, where deemed necessary, of persons, for communications, securities, or currency carried in violation of the restrictions published in this connection; the examination, detention, and disposition of cargo, merchandise, or currency in which enemy nationals or proclaimed list firms or individuals have an interest; the examination of vessels for antisabotage purposes; and other allied work.

Other activities of the Bureau of Customs were continued along the lines outlined in previous annual reports. The following is a statistical summary of the principal items, with the figures for the preceding year shown for comparison:

Item	Fiscal year	
	1943	1942
Vessels entered.....	4, 871	6, 850
Vessels cleared.....	4, 871	6, 757
Aircraft entered.....	2, 516	2, 235
Aircraft cleared.....	2, 513	2, 232
Customs releases on shipments consigned to Panama.....	5, 901	11, 976
Shipments of household goods of employees to United States, inspected and sealed for shipment to United States.....	151	208
Invoices certified for shipment to United States.....	1, 207	1, 240
Chinese passengers arriving.....	4	81
Chinese admitted to Panama.....	1	38
Vessels with Chinese crews checked.....	186	322

SHIPPING COMMISSIONER

The shipping commissioner and his deputies have the same authority as shipping commissioners in United States ports and United States consuls in foreign ports with respect to United States seamen. During the fiscal year 459 seamen were shipped in vessels of the United States and 441 were discharged. No sick or destitute seamen were returned to the United States at the expense of the appropriation for relief of destitute American seamen, but 140 were signed on vessels as workaways, and returned to the United States without expense to the Government.

The total wages earned by seamen who were discharged at Canal Zone ports amounted to \$304,613, and the total approved deductions on account of advances, allotments, fines, slop-chest accounts, etc., amounted to \$142,243. The balance of \$162,370 was either paid to seamen under supervision of the deputy shipping commissioners or received on deposit for the seamen by the deputy shipping commissioners. The wages, moneys, and effects of two American seamen, one of whom died in a local hospital and the other in the Republic of Panama, were handled by the shipping commissioner, and remitted to the proper courts in the United States for disposition.

ADMINISTRATION OF ESTATES

The public administrator takes charge of all estates within the Canal Zone which require administration and are not handled by others legally entitled to administer them. In the case of estates with total assets exceeding \$1,000 in value, the public administrator charges the regular commissions fixed by law, which are paid into the Treasury of the United States. Commissions amounting to \$4,684 were collected

during the fiscal year. The estates of 315 deceased or insane persons, with cash assets of \$111,251 were settled during the fiscal year.

FOREIGN CORPORATIONS

Foreign corporations doing business in the Canal Zone are required to secure licenses, and during the fiscal year 1943, 126 foreign corporations were licensed. The majority of these are steamship lines, steamship agencies, and Government contractors. Fees amounting to \$1,260 were collected.

INSURANCE

The license fee for insurance companies doing business in the Canal Zone is \$10 per year plus a tax of $1\frac{1}{2}$ percent on premiums collected. At the end of the fiscal year 20 insurance companies were licensed to write insurance in the Canal Zone. Life-insurance companies reported that as of December 31, 1941, a total of 1,643 policies were in force. During the calendar year 1942, 287 policies were issued and 301 canceled, leaving 1,629 having an aggregate face value of \$5,675,769, in force as of December 31, 1942. Premium collections on life-insurance policies during the calendar year 1942 totaled \$203,494.

During the calendar year 1942 the premiums received by miscellaneous insurance companies, including accident, automobile liability, fire, surety, fidelity, etc., but excluding life insurance, amounted to \$818,259. Losses paid during the year totaled \$143,584.

The tax of $1\frac{1}{2}$ percent on premiums by all classes of insurance companies amounted to \$15,326 for the calendar year 1942, as compared with \$16,475 during the previous year.

LICENSES

The number of motor vehicle licenses and transfers, together with the number of peddlers' licenses issued during each of the past 3 years and the aggregate fees collected therefor are summarized below. These include licenses for official vehicles for which no charge is made:

Fiscal year	Vehicle licenses issued	Motor vehicle transfers	Peddlers' licenses	Total	License fees
1941	21, 231	6, 498	806	28, 535	\$101, 887
1942	25, 696	8, 846	340	31, 882	122, 481
1943	20, 235	9, 512	173	29, 920	104, 631

RATIONING PROGRAM

A program for the rationing of tires and gasoline has been established in the Canal Zone in accordance with delegation of authority to the Governor by the Office of Price Administration and was in

effect during the year. Special regulations, conforming generally to those in effect in the United States with such modifications as are necessary because of local conditions, have been issued by the Governor for the rationing of tires and gasoline. Automobiles and bicycles are rationed under the regulations applicable in the United States. No other rationing was enforced in the Canal Zone.

The general administration of the program is conducted by the Canal Zone Rationing Board, which handles tires, automobiles and bicycles, and the Canal Zone Gasoline Rationing Board which handles matters pertaining to gasoline. Each board has three members, representing, respectively, The Panama Canal, the United States Army, and the United States Navy.

Ration certificates were issued for the release of 2,921 passenger tires, 3,790 truck tires, and 1,263 obsolete-type tires and for the recapping of 914 tires. In addition, certificates for the release of 401 bicycles and 4 automobiles were issued.

Gasoline rations were issued as follows:

Basic A books for automobiles.....	13, 044
Supplemental B books for automobiles.....	2, 161
Basic E books for motorcycles.....	298
Supplemental E books for motorcycles.....	2
Non-highway E books.....	285
Certificates of authority to acquire gasoline.....	309

At the close of the fiscal year, 9,005 A books for passenger automobiles were outstanding and 481 persons held B books, a ratio of 5 percent.

COMMERCIAL AVIATION

All commercial aviation activities in the Canal Zone are centered at Albrook Field on the Pacific side of the Isthmus, these operations having been transferred from France Field on the Atlantic side immediately after the outbreak of war.

Construction of a permanent air terminal building which was begun during the preceding year was rapidly nearing completion at the end of 1943, and will be ready for use in the early part of the fiscal year 1944. The hangar has already been completed and was placed in partial operation on May 17, 1943.

The first schedule of the foreign air carrier TACA, SA, of El Salvador, to conduct operations between Balboa, C. Z., and San Jose, Costa Rica, was started on September 21, 1942. This company has since secured a permit to operate between San Jose and Miami, Fla.

Tabulated below is a statistical summary of commercial aviation activities in the Canal Zone for the fiscal year 1943, compared with 1942 and 1941.

Number of passengers carried by regularly scheduled airlines

	1943	1942	1941
Canal Zone and foreign:			
Incoming	35,297	22,039	10,786
Outgoing	34,338	21,592	10,234
Total	69,635	43,631	21,020
Trans-Isthmian:			
Enplaned at Albrook Field	(1)	1,887	2,413
Enplaned at France Field	(1)	2,101	2,175
Total		3,988	4,588
Air express and mail (pounds). ²			
Entered	2,878,636	991,300	270,838
Cleared	1,978,835	963,925	384,563
Total	4,857,471	1,955,225	655,401
Number of commercial planes entering Canal Zone	2,516	1,619	1,154

¹ Discontinued due to restrictions on trans-Isthmian air traffic. Figures do not include transhipped cargo which entered and cleared without being unloaded in the Canal Zone.

As will be noted from the above there have been broad increases in both passenger travel and movement of air express during the past 2 years. Passenger movement is more than three times that of 2 years ago while the increase in air express and mail is more than sevenfold. However, the schedules of the airlines continue to fall short of meeting the demand placed upon them and large backlogs of passengers and air express are constantly found in the Canal Zone. No improvement in this situation is expected in 1944, or until such time as additional equipment for the present operators is made available or additional operators are granted permits to operate in the Canal Zone.

SECTION V

FINANCIAL AND STATISTICAL STATEMENTS

Financial statements of major interest relative to the operation of The Panama Canal are presented in this section. These statements are abstracted from the annual report of the accounting department of The Panama Canal.

ACCOUNTING SYSTEM

Accounts are maintained in accordance with statutory rules and regulations and accepted principles of appropriation and fund accounting prescribed for governmental bodies. However, the activities being of a quasi-business nature, the accounting system has been adapted to conform as nearly as practicable to the principles and practices approved by the Interstate Commerce Commission and State boards regulating public utilities as well as to procedures followed by comparable industries in the corporate field.

For purposes of valuating the investment, July 12, 1920, the date on which the Canal was formally declared open to commercial traffic by Presidential proclamation, was fixed as the close of the construction and development period of the Panama Canal.

Interest on the United States Treasury funds advanced up to July 12, 1920, amounting to \$128,991,063, the treaty payment of \$10,000,000 to the Republic of Panama in 1904, and the annual treaty payment aggregating \$2,000,000 to the Republic of Panama from 1913 to 1920 are considered as being construction cost and are so reflected in the capital investment account. Additions to the capital investment account are made from time to time by the inclusion of the cost of new capital additions; deductions are made of the amounts of assets withdrawn through sale and retirement of depreciated items.

Obligations for treaty payments of \$250,000 annually to the Republic of Panama are reflected in the operating accounts beginning with the fiscal year 1921. A provision in the Treaty of 1936 with the Republic of Panama increased the annual payments to \$430,000 retroactive to the fiscal year 1934, and operating accounts have been adjusted to reflect the increased payment.

Depreciation of depreciable property and equipment is charged to operations at accepted rates, the amounts so charged being accrued in offsetting valuation or depreciation reserve accounts. Using account

balances as of the beginning of the fiscal year, accrued depreciation is deducted from gross capital to establish the investment upon which interest return is calculated.

Subsequent to the fiscal year 1920, a potential capital interest return of 3 percent has been considered as an unrecorded charge to expenses in determining computed surplus or deficit, while net revenues before interest charges have been used to calculate the actual rate of return on net capital investment.

Based on the foregoing, the gross capital investment at the beginning of the fiscal year 1943 was \$647,722,440.89, which, after deducting depreciation of \$41,031,089.43, and Canal defense property and additional facilities (third locks), amounting to \$92,283,987.68, leaves a net capital investment of \$514,407,363.78. There was a net deficit of \$3,889,039.75 from operations of the Canal and a net revenue of \$1,492,542.70 from business operations, a combined net deficit of \$2,396,497.05.

OPERATIONS OF THE PANAMA RAILROAD COMPANY

The results from the operations of the railroad proper and its various business units on the Isthmus are shown in detail in the accounts of the Panama Railroad Co. The detailed statement of revenue, expenses, and statistics for all railroad industries, changes in the capital account, and the results from operations of the steamship line appear in the annual report of the Panama Railroad Co. A review of these activities is presented in section II of this report under the heading "Business operations under the Panama Railroad Co."

PANAMA CANAL OPERATIONS

The major financial results of Panama Canal operations are presented hereinafter in tables Nos. 1 to 28, with supplementary comments and explanations.

The following is a list of all of the tables and bureau reports contained in the annual report of the accounting department. The tables and reports Nos. 29 to 62, inclusive, are not printed because they are concerned principally with details of operations which lack general interest, and their publication would be an unwarranted expense. The complete report for the accounting department, as well as those of the other departments and divisions, is on file at the office of the Governor or at the Washington office of The Panama Canal. For purpose of reference, the complete list of tables and reports for the accounting department is printed below. Following the list are presented the major tables, Nos. 1 to 28 inclusive, with various notes of explanation.

Table
No.

INDEX TO TABLES

1. General balance sheet.
2. Canal general property.
3. Floating plant.
4. Business fixed property.
5. Business equipment.
6. Capital assets, depreciable and nondepreciable.
7. Public works, Republic of Panama.
8. Cash receipts and disbursements, appropriated funds.
9. Cash receipts and disbursements, custodial funds.
10. Accounts receivable registered and outstanding.
11. Stores (material and supplies).
12. Work in progress.
13. Deferred charges.
14. Capital investment.
15. Accounts payable.
16. Depreciation reserves.
17. Reserve for repairs.
18. Reserve for leave.
19. Deferred credits.
20. Income, expenses, and net revenues (current).
21. Revenues, expenses, and computed surplus.
22. Capital refundments (miscellaneous receipts and Canal appropriations).
23. Balance of revenues and refundments.

Details of Operation for Profit and Loss (Summaries on Tables 20 and 21)

24. Canal revenues.
25. Canal earnings, expenses, and net expenses.
26. Business revenues, expenses, and profit or loss.

Miscellaneous

27. Balances in appropriation and fund accounts.
28. Funded reserves.

Addenda not published

29. Cost of dredging.
30. Cost of electric current.
31. Cost of water.
32. Postal service—Revenues, expenses, and surplus.
33. Postal service—Money-order funds balance sheet.
34. Postal service—Money orders issued and paid, 1907 to 1943, inclusive.
35. Clubhouse, postal money order and savings funds.
36. Panama Canal clubhouses—Balance sheet.
37. Panama Canal clubhouses—Income and expenditures.
38. Audited Isthmus pay rolls.
39. Pay-roll deductions.
40. War Savings Bond sales—Pay-roll deductions and cash.
41. Silver quarters statistics.
42. Health department bills and miscellaneous bills.
43. Recapitulation of pay-roll deductions (silver employees).
44. Rent collections (gold quarters) from nonemployees.

Table
No.*Addenda not published—Continued*

45. Commissary coupons issued, sold, and honored.
46. Accounts payable registered—Panama Canal.
47. Accounts payable registered—Panama Railroad.
48. Personal injury claims.
49. Injuries and deaths, Panama Canal and Panama Railroad.
50. Injuries and deaths—Payments under various acts.
51. Damages to vessels.
52. Freight and cargo claims.
53. Shipments under "Government Losses in Shipment" Act (Public No. 192, 75th Cong.).
54. Report of Canal accounting bureau.
55. Report of Railroad accounting bureau.
56. Report of commissary accounting bureau.
57. Report of claims bureau.
58. Report of pay-roll section, claims bureau.
59. Report of auditing bureau.
60. Report of coupon accounting bureau.
61. Report of general bureau (mail, files, and employees' bonds).
62. Report of inspection bureau.

TABLE No. 1.—General balance sheet, June 30, 1943

ASSETS		
Capital assets		
Canal general property (table No. 2).....	\$498,275,910.37	
Floating plant (table No. 3).....	9,615,086.32	
Canal defense property.....	61,249,498.13	
Additional facilities (third set locks).....	67,456,973.97	
Business fixed property (table No. 4).....	41,534,449.11	
Business equipment (table No. 5).....	1,914,081.13	
Total capital assets (table No. 6).....		\$683,045,999.36
Reimbursable capital expenditures: Public works, Republic of Panama (table No. 7).....		810,762.81
Custodial funds:		
Special deposit funds:		
Clubhouse funds.....	\$1,482,763.20	
Money-order funds.....	10,248,064.12	
War Saving Bonds funds.....	70,627.95	
Security deposit funds.....	2,396,920.19	
Total special deposit funds (see contra).....	14,198,975.46	
Revenue due U. S. Treasury.....	241,487.01	
Total custodial funds (table No. 9).....		14,440,462.47
Working assets:		
Appropriated funds:		
With U. S. Treasury.....	\$61,212,888.86	
With fiscal officers.....	12,753,682.97	
Total appropriated funds (table No. 8).....	73,966,571.83	
Accounts receivable (table No. 10).....	5,393,441.57	
Stores (table No. 11).....	13,434,960.33	
Work in progress (table No. 12).....	1,139,582.13	
Total working assets.....		93,934,555.86
Deferred charges (table No. 13).....		1,776,138.97
Total assets.....		794,007,919.47
LIABILITIES		
Capital investment:		
Net appropriations by Congress.....	\$559,560,699.17	
Interest during construction.....	128,991,063.00	
Total capital investment (table No. 14).....		688,551,762.17
Special deposit accounts (see contra).....		14,198,975.46
Accounts payable (table No. 15).....		3,288,792.82
Reserve for repairs (table No. 17).....		493,576.61

TABLE No. 1.—*General balance sheet, June 30, 1943*—Continued

LIABILITIES—Continued

Reserve for leave (table No. 18).....		\$2, 863, 790. 28
Deferred credits (table No. 19).....		4, 268, 125. 61
Revenues and refundments:		
Net revenues to June 30, 1942.....	\$282, 177, 485. 81	
Prior year adjustment (table No. 32).....	225, 082. 70	
Net revenues to June 30, 1942, as adjusted.....	282, 402, 568. 51	
Operating deficit fiscal year 1943 (table No. 20).....	2, 396, 497. 05	
Total net revenues (table No. 21).....	280, 006, 071. 46	
Canal depreciation (table No. 16).....	25, 760, 586. 75	
Plant depreciation (table No. 16).....	17, 964, 522. 41	
Total.....	323, 731, 180. 62	
Less capital refundments (table No. 22).....	243, 388, 284. 10	
Balance revenues and refundments (table No. 23).....		80, 342, 896. 52
Total liabilities.....		794, 007, 919. 47

The terms and arrangement of the foregoing balance sheet follow closely the generally accepted principles of corporate accounting, except as to the last item "Revenues and refundments." The statutes require that receipts for tolls, civil revenues, and net profits on business operations shall be covered into the United States Treasury, and relinquished from control of The Panama Canal.

Funds for current operating expenses and capital construction are appropriated by the Congress, and for accounting purposes are considered as provided from the tolls and other receipts covered into the Treasury. Practically all receipts other than those cited above are repayable to Canal appropriations, and may be reexpended, but as the Canal is deprived of tolls revenue, its principal source of income, the reexpendable receipts are insufficient to provide for operation and maintenance, thus requiring the Canal to submit its expenditure program annually to the Congress.

Total net revenues, appearing under the caption "Revenues and refundments," represent the accumulated operating earnings of The Panama Canal before capital interest charges.* This net revenue, however, has been covered into the United States Treasury in the form of tolls and other receipts. It therefore follows that net capital refundments and net revenues earned will always be approximately the same, except for the fluctuation of unexpended appropriated cash and other working capital items.

These various fund requirements leave the Panama Canal balance sheet without an equivalent for the usual corporate "Surplus account," since any surplus is included in the tolls covered into the Treasury, by law. However, the equivalent for "Surplus account" is shown on table No. 21, which compares, "Total net revenues" of \$280,006,071.46, appearing on the balance sheet, with the computed interest on the net capital investment, by fiscal years, beginning with 1921, but no interest charge against the Canal is actually made by the United States Treasury.

TABLE NO. 2.—Canal general property, fiscal year 1943

	Balance July 1, 1942	Additions and transfers	Retirements and transfers	Balance June 30, 1943
Channels, harbors, and basins:				
Balboa to Pedro Miguel	\$24,309,928.86			\$24,309,928.86
Pedro Miguel to Gatun	113,466,691.77			113,466,691.77
Gatun to Cristobal	12,829,445.51			12,829,445.51
Breakwaters				
Naos Island	1,075,874.10			1,075,874.10
Colon East	3,994,727.10			3,994,727.10
Colon West	4,528,829.57			4,528,829.57
Locks				
Miraflores	24,657,895.17			24,695,468.11
Storehouse, Paraiso		\$37,572.94		
Pedro Miguel	16,776,469.11			16,776,469.11
Gatun	37,914,498.12			37,914,498.12
Floating caisson	347,868.15			347,868.15
Towing locomotives	1,505,397.32			1,505,397.32
Dams:				
Miraflores	1,228,561.63			1,228,561.63
Pedro Miguel	457,302.32			457,302.32
Madden	9,774,175.43			9,773,003.98
Filter plant (adjustment)			\$1,771.45	
Gatun	10,475,943.56			10,475,943.56
Gatun-Mindi Levee	148,974.22			148,974.22
Spillways:				
Miraflores	1,398,684.94			1,398,684.94
Gatun	4,323,538.02			4,323,538.02
Aids to navigation:				
Channel aids	627,656.80			627,656.80
Transit aids	24,191.04			24,191.04
Coastal aids	175,069.78			175,069.78
Lighthouse depot	69,985.41			184,511.01
Improvements, lighthouse dock, Gatun		114,525.60		
Wharves and piers:				
Balboa (Nos. 14 to 19)	4,102,186.34			4,102,186.34
Gamboa	295,430.46			295,430.46
Cristobal (Nos. 6, 13, 14, 15)	2,918,370.48			3,217,696.84
Reconstruct Pier No. 13		91,297.23		
Extend Pier No. 15		208,029.13		
Dry docks:				
Balboa	3,645,313.06			3,645,313.06
Cristobal	672,437.70			672,437.70
Coaling plants:				
Balboa	2,034,568.35			2,034,568.35
Cristobal	3,679,797.59			3,679,797.59
Dredging division plant	978,625.09			978,625.09
Ferry plants:				
Thatcher Ferry plant	1,007,647.89			1,168,601.38
Slips (new)		144,576.99		
Slips (old) (demolished)			58,000.00	
Ferry boat <i>President Porras</i> (Nassau)		74,376.50		
Miraflores Ferry plant	66,242.15			66,242.15
Titles and treaty rights:				
Purchase, price, New Panama Canal Co	31,717,335.97			31,717,335.97
Treaty payment to Republic of Panama, 1904	10,000,000.00			10,000,000.00
Annual treaty payments to Re- public of Panama, 1913-20	2,000,000.00			2,000,000.00
Relocation of Panama Railroad	9,800,626.46			9,800,626.46
Re-equipment of Panama Railroad	3,247,332.11			3,247,332.11
Depopulation, Canal Zone	2,701,016.24			2,701,016.24
General buildings and structures:				
Office buildings	2,139,263.89			2,139,263.89
Gorgas Hospital	1,967,450.17			2,152,089.06
Alterations, board of health laboratory and mortuary		128,986.55		
Construct wards No. 30 and 31, section E		55,652.34		

¹ Original purchase price of \$40,000,000, less Panama Railroad Co. capital stock and sales and transfers of property acquired.

TABLE No. 2.—*Canal general property, fiscal year 1943—Continued*

	Balance July 1, 1942	Additions and transfers	Retirements and transfers	Balance June 30, 1943
General buildings and structures—Con.				
Corozal Hospital	\$593,066.58			\$670,110.61
Construct 80-patient barracks		\$58,141.82		
Construct steam plant		18,902.21		
Colon Hospital	448,080.11			532,785.62
Construct ward building		6,757.65		
Construct temporary wards		66,207.06		
Construct clinic building		1,200.00		
Construct dispensary and pharmacy		8,076.75		
Extension of kitchen		1,664.05		
Alterations, service building		300.00		
Construct steam plant		500.00		
Margarita Hospital				103,578.09
Addition		103,578.09		
Dispensaries	250,142.16			250,142.16
Palo Seco Colony	189,929.78			190,763.75
Construct ward building No. 22		833.97		
Quarantine stations	65,392.70			65,392.70
Other health department structures	130,720.64			130,720.64
Playgrounds	295,600.51			283,440.43
Tennis courts, Balboa (con- verted into parking area)			\$12,160.08	
Post offices	240,060.96			238,468.34
Corozal (transferred to U. S. Army)			1,592.62	
Schoolhouses	2,537,389.83			2,570,222.31
Junior college, section A, Balboa		32,832.48		
Fire stations	121,749.77			121,749.77
Police stations	284,387.98			284,387.98
Prisons	57,832.48			57,871.45
Construct common jail, Gamboa		38.97		
Courthouses	187,732.73			187,732.73
Other buildings and structures	616,424.53			630,172.48
Addition, Building 58, Gamboa		177.67		
Construct district quartermas- ter's office, Gatun		15,795.28		
Building 77S, Balboa (adjust- ment)			2,225.00	
Permanent townsites	2,152,829.21			2,174,454.60
Ancon		9,024.78		
Balboa		12,549.67		
Corozal		58.56		
Cristobal		621.70		
Gamboa		226.04		
Gatun		445.18		
Margarita (adjustment)			1,300.54	
Roads, streets, and sidewalks	5,752,462.29			5,771,058.59
Ancon		4,133.92		
Balboa		1,407.02		
Corozal		1,141.55		
Gamboa		464.09		
Margarita		11,449.72		
Sewer system	888,283.60			900,925.35
Ancon		1,194.37		
Balboa		3,546.12		
Corozal		1,173.69		
Cristobal		1,144.03		
Gamboa		1,101.76		
Gatun		121.78		
Margarita		3,375.70		
Pedro Miguel		984.30		
Street-lighting system	239,665.57			239,672.06
Ancon		6.49		
Interest during construction period	128,991,063.00			128,991,063.00
Total, Canal general property	497,128,766.31	1,224,193.75	77,049.69	498,275,910.37
Canal defense property	48,241,450.74	13,008,047.39		61,249,498.13
Construction, additional facilities	44,042,536.94	23,414,437.03		67,456,973.97

TABLE NO. 3. *Floating plant, fiscal year 1943*

	Balance July 1, 1942	Additions and transfers	Retirements and transfers	Balance June 30, 1943
Tugs and craneboats	\$2,680,493.09			\$2,820,558.88
<i>Alhajuela</i> (part)		\$139,909.42		
<i>Arriyan</i> (part)		156.37		
Launches	708,325.84			832,850.06
<i>Amberjack</i> , new (part)		24,357.90		
<i>Boho</i> , new (part)		12,710.35		
<i>Diana II</i> , new (part)		13,637.50		
<i>Frigate</i> , new (part)		10,315.62		
<i>Gariota</i> , new (part)		32,850.29		
<i>Sailfish</i> , new (part)		13,825.24		
<i>Skate</i> , new (part)		8,957.67		
<i>Toucan II</i> , new (part)		23,480.95		
<i>Trout</i> (formerly <i>Carp</i>), new (part)		14,421.61		
<i>Bassett</i> (sunk in collision)			\$9,650.53	
<i>Jessop</i> (sold to U. S. Navy)			15,492.49	
<i>Albacore</i> , new engine		4,020.60		
<i>Albacore</i> , engine (removed)			4,020.60	
<i>Owl</i> , new engine		4,020.60		
<i>Owl</i> , old engine (sold to U. S. Navy)			4,250.00	
Engines, spare		3,380.71		
Engines, spare, installed			8,041.20	
Dredges	2,562,962.05			2,550,068.51
<i>Gamboa</i> , reboiler (completed)		2,106.46		
<i>Gamboa</i> , boilers (removed)			15,000.00	
Dump scows	1,651,335.81			1,651,335.81
Machine barges	1,260,218.95			1,260,218.95
Lighters	426,057.08			440,977.36
No. 100 ¹		22,935.25		
No. 101 ¹		27,485.03		
No. 96 ¹			10,000.00	
No. 97 ¹			10,000.00	
No. 218 (converted into anchor barge)			14,798.00	
No. 218 (adjustment)			702.00	
Launch repair barge	5,367.39			27,763.78
Barge, new (completed)		22,396.39		
Anchor barge				31,312.97
Barge, new (part)		31,312.97		
Total, floating plant	9,294,760.21	412,280.93	91,954.82	9,615,086.32

¹ Lighters 96 and 97 were exchanged for barges 100 (formerly *A-25*) and 101 (formerly *Argoif*) with U. S. Army.

TABLE NO. 4.—*Business fixed property, fiscal year 1943*

	Balance July 1, 1942	Additions and transfers	Retirements and transfers	Balance June 30, 1943
Hydroelectric plant, Gatun	\$1,755,785.01			\$1,755,785.01
Diesel electric plant, Miraflores	1,524,416.92			1,897,730.97
One 2,500 kilowatt generator set		\$373,314.05		
Substations	1,583,843.33			1,583,843.33
Transmission system	1,560,695.81			1,560,695.81
Distribution system	1,976,728.90			2,027,924.21
Ancon		3,859.27		
Balboa		2,422.59		
Corozal		3,935.80		
Cristobal		9,720.61		
Gamboa		698.63		
Gatun		426.54		
Margarita		1,616.06		
Pedro Miguel (adjustment)			\$1,484.19	
Distribution house, Gamboa		4,492.02		
Replace cable feeders		1,957.32		
Extensions and improvements on account of increased loads		23,550.66		
Madden Dam system	1,587,426.31			1,728,152.54
One 10,000 kilovolt-ampere turbine generator		140,706.23		
Total, electric power system	9,988,806.28	566,719.78	1,484.19	10,554,131.87
Electric work	300,417.05			348,308.63
Alterations, Bldg. No. 14, Balboa		9,413.30		
Marine electric shop, Mount Hope		38,478.28		
Total, electric work	300,417.05	47,891.58		348,308.63
Zone water system	1,577,615.27			1,649,197.84
Reservoir, Fort Gulick		3,295.43		
Pumps, Miraflores pump station		11,358.07		

TABLE NO. 4.—*Business fixed property, fiscal year 1943—Continued*

	Balance July 1, 1942	Additions and transfers	Retirements and transfers	Balance June 30, 1943
Zone water system—Continued				
Miraflores-Cocoli main		\$1, 787. 92		
Thatcher Road-Cocoli main		32. 13		
Miraflores-Pedro Miguel main		8, 191. 67		
Mount Hope-Fort Gulick main		19, 007. 31		
Distribution lines:				
Aneon		12, 859. 30		
Balboa		4, 717. 15		
Corozal		1, 334. 51		
Cristobal		690. 32		
Gamboa		237. 77		
Gatun		2, 136. 95		
Margarita		1, 679. 60		
Pedro Miguel		3, 017. 04		
Agua Clara filter station		1, 237. 40		
Zone-Panama water system	\$3, 182, 836. 99			\$3, 284, 288. 41
Reservoir, Chorillo Hill		57. 15		
Enlarge Balboa pump station		306. 87		
Pumps, Gamboa pump station		4, 119. 10		
Enlarge Miraflores filter plant		65, 043. 05		
Equipment, Miraflores filter plant		31, 925. 25		
Zone-Colon water system	905, 407. 52			1, 390, 768. 38
Pumps, Mount Hope pump station		41, 153. 72		
Enlarge Mount Hope filter plant		122, 182. 25		
Equipment, Mount Hope filter plant		27, 677. 51		
Gatun Lake to Mount Hope main		294, 347. 38		
Total, water system	5, 665, 859. 78	658, 394. 85		6, 324, 254. 63
Municipal engineering work	123, 218. 12			123, 218. 12
Balboa shops	2, 486, 631. 03			2, 486, 631. 03
Cristobal shops	580, 866. 47			580, 866. 47
Total, mechanical shops	3, 067, 497. 50			3, 067, 497. 50
Balboa fuel-oil plant	962, 924. 22			962, 924. 22
Cristobal fuel-oil plant	1, 289, 553. 92			1, 335, 322. 16
Gasoline storage tank		45, 768. 24		
Total, fuel-oil plants	2, 252, 478. 14	45, 768. 24		2, 298, 246. 38
General storehouses	1, 589, 784. 13			1, 687, 546. 02
Steel and cable storage shed, Balboa		26, 102. 52		
Lean-to shed, Balboa oil-handling plant		21, 315. 43		
Addition, warehouse No. 42-E, Diabolo		10, 239. 47		
Spare parts warehouse, Gamboa		28, 511. 44		
Addition, storehouse for inflammables, Mount Hope		11, 593. 03		
Motor transportation	156, 774. 00			156, 774. 00
Motorcar repair shops	209, 431. 64			209, 431. 64
Building division	82, 987. 13			83, 018. 21
Addition, Bldg. No. 58, Gamboa		31. 08		
Gold quarters	13, 951, 688. 95			14, 430, 421. 22
New quarters:				
Ancon		20, 414. 09		
Balboa		339, 661. 28		
Corozal		73, 973. 62		
Margarita		8, 499. 19		
Pedro Miguel		380. 32		
Alterations and improvements		36, 680. 18		
Furniture		32, 979. 89		
Old quarters retired:				
Balboa (demolished)			\$6, 371. 31	
Cristobal (demolished)			2, 400. 00	
Gatun (demolished)			3, 785. 34	
Gatun (transferred to U. S. Army)			500. 00	
Pedro Miguel (demolished)			12, 000. 00	
Garages retired:				
Ancon (demolished)			245. 08	
Balboa (demolished)			7, 280. 57	
Cristobal (demolished)			1, 274. 00	
Silver quarters	1, 383, 885. 07			1, 419, 360. 43
New quarters:				
La Boca		1, 328. 47		
Cristobal		35, 346. 89		
Old quarters retired: Panama Railroad yards, Panama City			1, 200. 00	
District quartermasters' supplies	48, 480. 69			48, 480. 69
Clubhouse business structures	783, 759. 80			783, 759. 80
Total, business fixed property	39, 605, 158. 28	1, 965, 831. 35	36, 540. 49	41, 534, 449. 14

TABLE NO. 5.—*Business equipment, fiscal year 1943*

	Balance July 1, 1942	Additions and transfers	Retirements and transfers	Balance June 30, 1943
Electric power system	\$328,682.90	- - - - -	- - - - -	\$328,682.90
Electric work	9,981.85	- - - - -	- - - - -	9,981.85
Municipal work	440,304.68	\$38,814.77	\$11,896.78	467,222.67
Mechanical shops	2,319,280.49	87,270.03	33,716.16	2,372,834.36
General storehouses	114,947.84	53,203.71	- - - - -	168,241.55
Motor transportation	863,481.45	361,583.62	17,850.28	1,210,214.79
Motorcar repair shops	50,031.37	1,788.60	- - - - -	51,819.97
Building division	163,325.72	10,706.64	1,847.67	172,184.69
Panama Canal press	130,088.10	3,853.85	3,544.22	130,397.73
District quartermasters' supplies	2,500.92	- - - - -	- - - - -	2,500.92
Total, business equipment	4,422,625.32	560,311.22	68,855.11	4,914,081.43

TABLE NO. 6.—*Capital assets, depreciable and nondepreciable, fiscal year 1943*

	Depreciable	Nondepreci- able ¹	Balance June 30, 1943
Canal general property:			
Channels, harbors, and basins	- - - - -	\$150,606,066.14	\$150,606,066.14
Breakwaters	- - - - -	9,599,430.77	9,599,430.77
Locks	\$65,963,468.52	15,276,232.29	81,239,700.81
Dams:			
Madden	5,508,509.79	4,264,494.19	9,773,003.98
Other	- - - - -	12,310,781.73	12,310,781.73
Spillways	3,791,569.33	1,930,653.63	5,722,222.96
Aids to navigation	1,011,428.63	- - - - -	1,011,428.63
Wharves and piers	7,615,313.64	- - - - -	7,615,313.64
Dry docks	3,339,329.22	978,421.54	4,317,750.76
Coaling plants	5,714,365.94	- - - - -	5,714,365.94
Dredging division plant	978,625.09	- - - - -	978,625.09
Ferry plants	1,234,843.53	- - - - -	1,234,843.53
Titles and treaty rights	- - - - -	59,466,310.78	59,466,310.78
Office buildings	2,139,263.89	- - - - -	2,139,263.89
Gorgas Hospital	2,152,089.06	- - - - -	2,152,089.06
Corozal Hospital	670,110.61	- - - - -	670,110.61
Colon Hospital	532,785.62	- - - - -	532,785.62
Margarita Hospital	103,578.09	- - - - -	103,578.09
Dispensaries	250,142.16	- - - - -	250,142.16
Palo Seco Colony	190,763.75	- - - - -	190,763.75
Quarantine stations	65,392.70	- - - - -	65,392.70
Other health department buildings	130,720.64	- - - - -	130,720.64
Playgrounds	283,440.43	- - - - -	283,440.43
Post offices	238,468.34	- - - - -	238,468.34
Schoolhouses	2,570,222.31	- - - - -	2,570,222.31
Fire stations	121,749.77	- - - - -	121,749.77
Police stations	284,387.98	- - - - -	284,387.98
Prisons	57,871.45	- - - - -	57,871.45
Courthouses	187,732.73	- - - - -	187,732.73
Other buildings and structures	630,172.48	- - - - -	630,172.48
Permanent townsites	- - - - -	2,174,454.60	2,174,454.60
Roads, streets, and sidewalks	- - - - -	5,771,058.59	5,771,058.59
Sewer system	- - - - -	900,925.35	900,925.35
Street lighting system	- - - - -	239,672.06	239,672.06
Interest during construction period	- - - - -	128,991,063.00	128,991,063.00
Total, Canal general property (table No. 2)	105,766,345.70	392,509,564.67	498,275,910.37
Floating plant (table No. 3)	9,615,086.32	- - - - -	9,615,086.32
Canal defense property (incomplete)	- - - - -	61,249,498.13	61,249,498.13
Construction, additional facilities (incomplete)	- - - - -	67,456,973.97	67,456,973.97
Business fixed property (table No. 4)	41,534,449.14	- - - - -	41,534,449.14
Business equipment (table No. 5)	4,914,081.43	- - - - -	4,914,081.43
Total, capital assets	161,829,962.59	521,216,036.77	683,045,999.36

¹ Channels, harbors, basins, breakwaters, and municipal assets are maintained at original values from current operating expenses. Other nondepreciable property includes excavation and earth fills at locks, dams, and dry docks, and earth saddles at Madden Dam; also certain projects which were incomplete at the close of the fiscal year.

TABLE NO. 7.—*Public works in cities of Panama and Colon, fiscal year 1943*

	Panama	Colon	Total
STATUS OF CAPITAL COST TO JUNE 30, 1945			
Construction cost:			
Water works and sewers	\$876,353.22	\$623,883.68	\$1,500,236.90
Pavements	592,913.23	625,619.03	1,218,532.26
Total construction cost	1,469,266.45	1,249,502.71	2,718,769.16
Amortization:			
Water works and sewers	610,128.39	434,248.56	1,044,376.95
Pavements	417,669.05	445,960.35	863,629.40
Total amortization	1,027,797.44	880,208.91	1,908,006.35
Capital cost reimbursable:			
Water works and sewers	266,224.83	189,635.12	455,859.95
Pavements	175,244.18	179,658.68	354,902.86
Capital value, June 30, 1943	441,469.01	369,293.80	810,762.81
OPERATING DETAIL, FISCAL YEAR 1943			
Operation, maintenance, and repairs:			
Water works and sewers	241,501.42	183,847.09	425,348.51
Pavements	16,748.29	4,587.07	21,335.36
Proportion, zone system	121,491.20	36,824.08	158,315.28
Street cleaning and garbage collection	169,328.37	68,262.97	237,591.34
Total	549,069.28	293,521.21	842,590.49
Interest at 2 percent per annum:			
Water works and sewers	5,461.40	3,890.23	9,351.63
Pavements	3,595.00	3,685.56	7,280.56
Proportion, Zone system	15,738.80	4,745.94	20,484.74
Total	24,795.20	12,321.73	37,116.93
Amortization:			
Water works and sewers	18,513.23	13,187.18	31,700.41
Pavements	12,186.44	12,493.43	24,679.87
Total	30,699.67	25,680.61	56,380.28
Total charged to water rentals	604,564.15	331,523.55	936,087.70
Water rental collections in the Republic of Panama	604,564.15	331,523.55	936,087.70

The Panama Canal supplies water to the cities of Panama and Colon from the Canal Zone water system, and maintains the sewers and streets in the two cities under a contract entered into between The Panama Canal and the Republic of Panama in 1907. The Panama Canal collects the water rentals from the residents of these two cities and uses the funds to cover the cost of water and maintenance of sewers and streets, interest on the unamortized investment at 2 percent per annum and amortization based on 50 years from 1907.

Interest on the investment amounting to \$37,116.93 and amortization amounting to \$56,380.28 for the fiscal year 1943 has been covered into the United States Treasury as miscellaneous receipts, making the totals to date \$1,793,795.15 for interest, and \$1,908,006.35 for amortization.

TABLE NO. 8.—*Appropriated funds—Receipts and disbursements, fiscal year ended June 30, 1943*

ACCOUNTABLE BALANCE JULY 1, 1942, BY APPROPRIATIONS AND FUNDS					
	Disbursing clerk, Wash- ington, D. C.	Paymaster, Canal Zone	Collector, Canal Zone	Total	U. S. Treasury
					Total
Maintenance and operation, Panama Canal.....	\$25,484.04	\$6,101,963.13	\$128,164.42	\$7,145,611.59	\$8,233,246.43
Sanitation, Canal Zone, Panama Canal.....	14,693.08	273,305.73	5,418.38	293,417.19	34,279.03
Civil government, Panama Canal and Canal Zone.....	14,270.12	56,016.05	1,112.22	71,398.39	34,175.88
Postal funds, Canal Zone (special fund).....	7,053.45	7,219.34	269,076.22	223,349.01	501,382.52
Reparation of unemployed aliens, Panama Canal.....	.....	2,106.23	.....	2,106.23	90,000.00
Memorial to Maj. Gen. George W. Goethals.....	215,743.27	2,951,743.31	162.37	3,167,698.95	156,508.58
Construction, additional facilities, Panama Canal.....	.....	100,000.00	.....	100,000.00	8,501,268.36
Working fund, Panama Canal: Access roads projects.....	.....	.....	.....	.....	578,000.00
Total.....	1,077,243.96	9,582,406.79	343,933.61	11,003,584.36	18,128,860.80
APPROPRIATIONS FOR FISCAL YEAR 1943					
Maintenance and operation, Panama Canal.....	.....	.....	.....	.....	40,152,437.00
Sanitation, Canal Zone, Panama Canal.....	.....	.....	.....	.....	1,546,000.00
Civil government, Panama Canal and Canal Zone.....	.....	.....	.....	.....	1,498,373.00
Construction, additional facilities, Panama Canal.....	.....	.....	.....	.....	56,826,800.00
Working funds, Panama Canal:	.....	.....	.....	.....	.....
Access roads projects.....	.....	.....	.....	.....	664,000.00
Hospitalization of military personnel.....	.....	.....	.....	.....	800,000.00
Policing Army civilian housing areas.....	.....	.....	.....	.....	26,000.00
(Trust fund) Venereal disease control.....	.....	.....	.....	.....	19,050.00
Transfer from Defense Public Works, FWA—Community facilities.....	.....	.....	.....	.....	385,100.00
Total.....	.....	.....	.....	.....	101,920,760.00
TRANSFERS BETWEEN FISCAL OFFICES					
Maintenance and operation, Panama Canal.....	27,000,000.00	36,438,381.77	.....	63,438,381.77	873,121.15
Sanitation, Canal Zone, Panama Canal.....	750,000.00	2,628,850.66	.....	3,378,850.66	206,605.68
Civil government, Panama Canal and Canal Zone.....	.....	1,588,117.95	.....	1,618,117.45	22,129.51
Postal funds, Canal Zone (special fund).....	45,000.00	450,000.00	.....	495,000.00	736,077.64
Reparation of unemployed aliens, Panama Canal.....	.....	10,000.00	.....	10,000.00	10,000.00
Construction, additional facilities, Panama Canal.....	3,600,000.00	23,443,132.68	.....	27,043,132.68	1,891,601.20
Working funds, Panama Canal:	.....	.....	.....	.....	.....
Access roads projects.....	.....	1,100,000.00	.....	1,100,000.00	1,100,000.00
Hospitalization of military personnel.....	.....	775,000.00	.....	775,000.00	775,000.00
Policing Army civilian housing areas.....	.....	29,000.00	.....	29,000.00	29,000.00
(Trust fund) Venereal disease control.....	.....	19,050.00	.....	19,050.00	19,050.00
Transfer from Defense Public Works, FWA—Community facilities.....	.....	200,000.00	.....	200,000.00	200,000.00
Total.....	31,455,000.00	66,681,623.06	.....	98,136,623.06	3,723,538.18
Total.....	.....	.....	.....	.....	101,860,161.24

COLLECTIONS REFAYABLE TO APPROPRIATIONS

Maintenance and operation, Panama Canal	433,244.30
Sanitation, Canal Zone, Panama Canal	176,878.38
Civil government, Panama Canal and Canal Zone	2,499.90
Postal funds, Canal Zone (special fund)	12,900.00
Construction, additional facilities, Panama Canal	1,682,591.85
Total	2,308,114.43
Total cash debits	34,840,358.39
COVERED INTO THE U. S. TREASURY	
Business net revenues, fiscal year 1942, maintenance and operation, Panama Canal	84,493,600.48

TRANSFERS BETWEEN FISCAL OFFICERS

Maintenance and operation, Panama Canal	865,921.15
Sanitation, Canal Zone, Panama Canal	206,605.68
Civil government, Panama Canal and Canal Zone	22,129.51
Postal funds, Canal Zone (special fund)	20,022.54
Repatriation of unemployed aliens, Panama Canal	
Construction, additional facilities, Panama Canal	
Working funds, Panama Canal	1,891,604.20
Access roads projects	
Hospitalization of military personnel	
Policing Army civilian housing areas	
(Trust fund) venereal disease control	
Transfer from Defense Public Works, FWA—Community facilities	
Total	3,006,283.08

DISBURSEMENTS

Maintenance and operation, Panama Canal	20,758,239.35
Sanitation, Canal Zone, Panama Canal	657,420.70
Civil government, Panama Canal and Canal Zone	44,804.24
Postal funds, Canal Zone (special fund)	37,526.65
Repatriation of unemployed aliens, Panama Canal	
Construction, additional facilities, Panama Canal	3,402,420.16
Working funds, Panama Canal	
Access roads projects	
Hospitalization of military personnel	1,119,605.10
Policing Army civilian housing areas	688,517.00
(Trust fund) Venereal disease control	10,369.64
Transfer from Defense Public Works, FWA—Community facilities	11,136.98
	59,883.78
Total	30,900,411.10

7,092,963.27	34,432,690.35	41,958,897.92	3,022.40	41,961,920.32
562,880.79	1,635,264.17	2,374,993.34	4,823.31	2,379,816.65
563,816.32	190,521.00	756,837.31	1,949.00	758,786.31
9,940.25	649,469.65	672,809.90	164.69	672,809.90
	444,653.27	2,127,245.12		2,127,409.81
8,229,570.63	37,352,598.53	47,890,283.59	9,939.40	47,900,242.99
84,493,600.48	37,696,532.14	157,030,491.01	123,783,118.38	280,813,609.39
			696,855.99	696,855.99
	34,170,581.77	35,036,502.92	29,275,000.00	64,311,502.92
	1,628,850.66	1,835,456.34	1,730,000.00	3,565,456.34
	188,147.95	210,277.46	1,400,000.00	1,670,277.46
	710,055.10	730,077.64	495,000.00	1,225,077.64
			10,000.00	10,000.00
	443,192.68	2,334,796.88	26,600,000.00	28,934,796.88
			1,100,000.00	1,100,000.00
			775,000.00	775,000.00
			29,000.00	29,000.00
			19,050.00	19,050.00
			200,000.00	200,000.00
			61,713,050.00	101,860,161.24
		65,980,226.68	21,426.28	66,001,652.96
		4,107,167.86	687.58	4,107,855.44
		2,164,082.29	390.82	2,164,473.11
		459,303.04	137,786.60	597,089.64
		2,018.09	32.25	2,018.09
		29,527,866.34		29,527,898.59
		1,119,605.10		1,119,605.10
		688,517.00		688,517.00
		10,369.64		10,369.64
		11,136.98		11,136.98
		59,883.78		59,883.78
		104,129,696.80	160,323.53	104,290,020.33

TABLE No. 8.—Appropriated funds—Receipts and disbursements, fiscal year ended June 30, 1943—Continued

	Disbursing clerk, Wash- ington, D. C.	Paymaster, Canal Zone	Collector, Canal Zone	Total	U. S. Treasury	Total
ACCOUNTABLE BALANCE JUNE 30, 1943						
Maintenance and operation, Panama Canal	\$634,225.64	\$10,501,320.84	\$300,273.00	\$11,525,819.48	\$10,268,544.71	\$90,704,354.19
Sanitation, Canal Zone, Panama Canal	77,880.08	15,200.02	11,831.89	104,912.99	41,020.44	145,992.43
Civil government, Panama Canal and Canal Zone	9,836.27	88,702.27	3,485.36	102,023.90	96,236.57	198,260.47
Postal funds, Canal Zone (special fund)	7,404.26	45,383.20	148,490.77	201,278.23	508,673.56	704,951.79
Repatriation of unemployed aliens, Panama Canal		10,091.14		10,091.14	80,000.00	90,091.14
Memorial to Maj. Gen. George W. Goethals					156,508.58	156,508.58
Construction, additional facilities, Panama Canal	204,317.96	269,539.81	1,622.96	475,480.73	40,619,805.00	41,095,285.73
Working funds, Panama Canal:						
Access roads projects		80,304.90		80,304.90	142,000.00	222,304.90
Hospitalization of military personnel		86,483.00		86,483.00		111,483.00
Police Army civilian housing areas		18,630.36		18,630.36	25,000.00	18,630.36
(Trust fund) General disease control		7,803.02		7,803.02		7,803.02
Transfer from Defense Public Works, FWA—Community facilities		140,616.22		140,616.22	185,100.00	325,716.22
Total	933,664.21	11,254,314.78	555,703.98	12,753,682.97	61,212,888.86	73,966,571.83
Total Cash Credits	34,840,358.39	84,493,600.48	37,696,532.14	157,030,491.01	123,783,118.38	280,813,609.39

TABLE No. 9.—Custodial funds—receipts and disbursements, fiscal year ended June 30, 1943

	Disbursing clerk, Wash- ington, D. C.	Paymaster, Canal Zone	Collector, Canal Zone	Total	U. S. Treasury	Total
ACCOUNTABLE BALANCE JULY 1, 1942						
Revenue due U. S. Treasury			\$30,615.05	\$30,615.05		\$30,615.05
Security deposits	\$11,961.16	\$199,161.06	1,628,831.60	1,839,953.82		1,839,953.82
Clubhouse funds			23,498.75	23,498.75	\$814,179.50	837,678.25
Money-order funds			97,355.75	97,355.75	10,083,790.12	10,181,145.87
Total	11,961.16	199,161.06	1,780,321.15	1,991,443.37	10,867,978.62	12,859,421.99
RECEIPTS						
Revenue due U. S. Treasury	244.53	49.92	7,625,909.85	7,626,204.30		7,626,204.30
Security deposits	113,918.43	14,269,812.16	17,707,083.79	32,090,814.38		32,090,814.38

Clubhouse funds.....				5,946,908.53	5,946,908.53	5,946,908.53	
Money-order funds.....				17,963,304.71	17,963,304.71	17,963,304.71	
War Savings Bonds funds.....				220,240.90	220,240.90	220,240.90	
Total.....	114,162.96	14,269,862.08		49,463,447.78	63,847,472.82	63,847,472.82	
Total to be accounted for.....	126,124.12	14,469,023.14		51,243,768.03	65,838,916.19	10,867,978.62	
Transfer to U. S. Treasury:				(5,932,656.85)	(5,932,656.85)	5,932,656.85	
Clubhouse funds.....				(17,773,886.76)	(17,773,886.76)	17,773,886.76	
Money-order funds.....				(220,215.90)	(220,215.90)	220,215.90	
War Savings Bonds funds.....							
Total cash debits.....	126,124.12	14,469,023.14		27,317,009.42	41,912,156.68	34,794,738.13	
COVERED INTO THE U. S. TREASURY							
Revenue due U. S. Treasury.....	244.53	49.92		7,550,235.19	7,550,529.64		7,550,529.64
TRANSFERS AND REFUNDS							
Security deposits.....	102,669.38	13,930,578.50		17,500,620.13	31,533,863.01		31,533,863.01
DISBURSEMENTS							
Clubhouse funds.....				9.00	9.00	5,301,814.58	5,301,823.58
Money-order funds.....				238,542.28	238,542.28	17,865,795.48	17,865,795.48
War Savings Bonds funds.....						149,612.95	149,612.95
Total.....	102,913.91	13,930,628.42		25,289,406.60	39,322,948.93	23,078,680.71	62,401,629.64
ACCOUNTABLE BALANCE JUNE 30, 1943							
Revenue due U. S. Treasury.....				106,289.71	106,289.71		106,289.71
Security deposits.....				1,835,315.26	2,396,920.19		2,396,920.19
Clubhouse funds.....	23,210.21	538,394.72		37,741.43	37,741.43		1,452,763.20
Money-order funds.....				48,231.42	48,231.42		10,248,664.12
War Savings Bonds funds.....				25.00	25.00		70,627.95
Total.....	23,210.21	538,394.72		2,027,602.82	2,589,207.75	11,716,057.42	214,305,265.17
Total cash credits.....	126,124.12	14,469,023.14		27,317,009.42	41,912,156.68	34,794,738.13	76,706,894.81

() Denotes deduction.

¹ Includes \$5,208,092.13 invested in U. S. Treasury bonds; \$290,202.26 in Federal Farm Loan bonds; \$2,250,000 in U. S. Treasury notes; and \$100,000 in War Savings Bonds, total \$7,848,334.39, an increase of \$2,000,000 in U. S. Treasury bonds, \$1,250,000 in U. S. Treasury notes, and \$50,000 in War Savings Bonds over the previous year.

² Total per balance sheet, table No. 1, \$14,440,462.47 includes \$135,197.30 of bills in process of collection.

Custodial funds cover cash transactions which are controlled by separate fiscal regulations from those which govern the expenditure of appropriations made by Congress for maintenance and operation of The Panama Canal.

Revenue due United States Treasury covers collections for deposit as miscellaneous receipts of the United States Government which form no part of the working cash of The Panama Canal, as these funds must by law immediately be covered into the United States Treasury and relinquished from control of The Panama Canal. These collections consist mainly of tolls, licenses, court fees and fines, and amortization of public works in Panama and Colon.

Security deposits cover cash received by Canal fiscal officers from banks, individuals, and companies to guarantee payment of bills rendered by The Panama Canal and the Panama Railroad Co., and to guarantee fulfillment of contracts. Disbursements of these funds represent transfers to revenue due United States Treasury on this table, collections repayable to appropriations on the preceding table, and the return of unexpended balances to depositors.

Special deposit funds cover certain activities conducted by the Canal Zone government separately from appropriations, principally postal money order funds, and transactions of Panama Canal club-houses maintained exclusively for employees.

TABLE NO. 10.—*Accounts receivable*
REGISTERED DURING THE YEAR

	Fiscal year 1943	Fiscal year 1942
Repaid to appropriations:		
Panama Railroad Company	\$5, 114, 774. 81	\$5, 667, 473. 35
Other departments of the United States Government	19, 908, 931. 23	10, 313, 569. 09
Individuals and companies	9, 902, 857. 18	7, 045, 030. 32
Total	34, 926, 563. 22	23, 026, 072. 76
Miscellaneous receipts:		
Tolls	7, 373, 358. 04	9, 772, 113. 32
Public works, Republic of Panama	93, 497. 21	93, 991. 35
Total	7, 466, 855. 25	9, 866, 104. 67
Total accounts receivable registered	42, 393, 418. 47	32, 892, 177. 43
Number of bills registered	66, 804	65, 119

ACCOUNTS RECEIVABLE END FISCAL YEAR

Audited bills	\$5, 332, 315. 96	\$4, 405, 532. 97
Hospital certificates	50, 936. 43	46, 651. 95
Injury compensation	10, 145. 66	7, 641. 49
Unredeemed commissary coupons	43. 52	1, 009. 85
Total	5, 393, 441. 57	4, 460, 836. 26

The balance at the end of the fiscal year includes all accounts due The Panama Canal except items of utility service, principally from employees, which are not credited to earnings until collected usually by pay-roll deductions.

TABLE No. 11.—*Materials and supplies*

	Fiscal year 1943	Fiscal year 1942
STOCK ON HAND, FIRST OF YEAR		
Balboa store.....	\$4, 833, 401. 94	\$2, 986, 363. 35
Medical store.....	279, 093. 36	134, 198. 52
Administration building store.....	51, 493. 98	42, 033. 77
Gamboa store.....	544, 798. 46	440, 293. 39
Cristobal store.....	1, 209, 910. 91	830, 356. 58
Locks store.....	539, 676. 87	525, 072. 96
Fuel-oil plants.....	40, 484. 34	108, 727. 97
Panama Canal press.....	103, 188. 21	114, 737. 46
Sand and gravel pile.....	59, 638. 16	141, 054. 88
Division stores.....	856, 668. 38	263, 107. 30
Total stock card value.....	8, 518, 354. 61	5, 585, 946. 18
Reserve for inventory adjustments.....	407, 946. 11	203, 734. 52
Book value of stock on hand.....	8, 110, 408. 50	5, 382, 211. 66
RECEIPTS OF MATERIAL		
Purchases for stock.....	17, 014, 003. 24	16, 726, 113. 74
Purchases for divisions.....	5, 980, 808. 30	14, 195, 218. 42
Local production.....	3, 787, 558. 29	2, 293, 626. 32
Service charges.....	1, 480, 482. 16	1, 534, 498. 92
Book value of receipts.....	28, 262, 851. 99	34, 749, 457. 40
Total charges to stock.....	36, 373, 260. 49	40, 131, 669. 06
ISSUES AND SALES OF MATERIAL		
Issues to business divisions.....	14, 289, 525. 37	20, 929, 407. 67
Issues to Canal divisions.....	3, 867, 104. 20	6, 108, 449. 19
Variation in division stores.....	(115, 628. 70)	(593, 561. 08)
Total issues.....	18, 041, 000. 87	26, 444, 295. 78
Sales.....	4, 897, 299. 29	5, 576, 964. 78
Total issues and sales.....	22, 938, 300. 16	32, 021, 260. 56
STOCK ON HAND, END OF YEAR		
Balboa store.....	8, 958, 997. 40	4, 833, 401. 94
Medical store.....	560, 410. 13	279, 093. 36
Administration building store.....	71, 904. 91	51, 493. 98
Gamboa store.....	1, 006, 106. 85	544, 798. 46
Cristobal store.....	1, 824, 235. 49	1, 209, 910. 91
Locks store.....	667, 584. 51	539, 676. 87
Fuel oil plants.....	70, 844. 65	40, 484. 34
Panama Canal press.....	277, 180. 75	103, 188. 21
Sand and gravel pile.....	90, 481. 72	59, 638. 16
Division stores.....	972, 297. 08	856, 668. 38
Total stock card value.....	14, 500, 043. 49	8, 518, 354. 61
Reserve for inventory adjustments.....	1, 065, 083. 16	407, 946. 11
Book value of stock on hand.....	13, 434, 960. 33	8, 110, 408. 50

In the foregoing table, the values of stock on hand at the beginning and end of the year are shown at invoiced cost including ocean freight.

The storehouse stock-card price includes an added percentage to cover handling cost. This item is shown as "service charges" under receipts of material and is also reflected in the total of issues and sales.

TABLE No. 12.—*Work in progress*

	Fiscal year 1943	Fiscal year 1942
Electrical division.....	\$2, 602. 87	\$1, 482. 89
Municipal division.....	5, 938. 94	20. 78
Shops and dry docks.....	1, 094, 138. 30	993, 379. 33
Building division.....	30, 630. 35	10, 051. 06
Panama Canal press.....	6, 271. 67	7, 659. 15
Total.....	1, 139, 582. 13	1, 012, 593. 21

This account covers the amounts expended on uncompleted jobs, and will ultimately be cleared to operating expenses of the divisions indicated, with corresponding credits to their revenues after application of authorized surcharges.

TABLE NO. 13.—*Deferred charges*

	Fiscal year 1943	Fiscal year 1942
Executive offices.....		\$4,823.45
Health department.....	\$16.62	1,929.04
District quartermaster, Balboa.....	1,351.87	
Dredging division.....	222,527.11	347,930.64
Experimental gardens.....	6,057.91	2,214.38
General accounts, suspense.....	62,371.15	4,490.27
Electric power system.....	636.52	10,000.00
Electric work.....	13,302.88	64,611.60
Telephone, telegraph, and signal work.....		113.00
Water system.....	4,968.31	6,859.36
Municipal work.....	47,661.45	6,731.24
Shops and dry docks.....	294,806.73	268,679.22
Fuel—oil plants.....	1,099.74	
General storehouses.....		65,000.00
Motor transportation.....	8,466.13	
Motorcar repair shops.....		3,608.55
Building division.....	70,875.76	161,519.18
Gold quarters.....	12,500.00	
Silver quarters.....	21,200.00	16,700.00
Subsistence section.....		649.54
District quartermasters' supplies.....	3,101.32	5,319.67
Public works:		
Panama.....	614,891.15	453,240.20
Colon.....	390,804.32	267,246.94
Total.....	1,776,138.97	1,631,666.37

This account covers expenses incurred for account of divisions indicated, but which are not chargeable to operating accounts of the current year. These amounts are cleared as soon as values are consumed.

TABLE NO. 14.—*Capital investment*

Appropriations for Canal construction to June 30, 1921 (detail in annual report for 1924, table No. 3).....	\$386,910,301.00
Deduct value of capital stock of the Panama Railroad Co.....	7,000,000.00
Net construction appropriations.....	379,910,301.00
Annual payments to the Republic of Panama, 1913 to 1920 (State Department).....	2,000,000.00
Additional construction funds, July 1, 1921, to June 30, 1943..	177,650,398.17
Total cash investment.....	559,560,699.17
Interest on construction funds (compounded annually) 1904 to 1920.....	128,991,063.00
Total capital investment.....	688,551,762.17

The capital investment account covers the following assets, showing the total as of June 30, 1942, the increase for the current fiscal year, and the total as of June 30, 1943.

	June 30, 1942	Increase	June 30, 1943
Canal general property (table No. 2).....	\$497, 128, 766. 31	\$1, 147, 144. 06	\$498, 275, 910. 37
Floating plant (table No. 3).....	9, 294, 760. 21	320, 326. 11	9, 615, 086. 32
Canal defense property.....	48, 241, 450. 74	13, 008, 047. 39	61, 249, 498. 13
Additional facilities (third set locks).....	44, 042, 536. 94	23, 414, 437. 03	67, 456, 973. 97
Business fixed property (table No. 4).....	39, 605, 158. 28	1, 929, 290. 86	41, 534, 449. 14
Business equipment (table No. 5).....	4, 422, 625. 32	491, 456. 11	4, 914, 081. 43
Public works, Republic of Panama (table No. 7).....	867, 143. 09	(56, 380. 28)	810, 762. 81
Proportion of working capital (table No. 23).....	4, 120, 000. 00	575, 000. 00	4, 695, 000. 00
Total capital investment.....	647, 722, 440. 89	40, 829, 321. 28	688, 551, 762. 17
Less accrued depreciation (table No. 15).....	41, 031, 089. 43	2, 694, 019. 73	43, 725, 109. 16
Net capital investment.....	606, 691, 351. 46	38, 135, 301. 55	644, 826, 653. 01

() Denotes decrease.

The total capital investment at the close of the fiscal year 1943 amounted to \$688,551,762.17. The increase of \$40,829,321.28 is due to the making of necessary additions to plant and equipment as shown on capital tables No. 2, 3, 4, and 5.

Interest on the net capital investment from 1921 to date is considered as a charge to operating expenses, and while this charge does not appear on the balance sheet, a statement of such interest compared with net revenues, by years, is shown on table No. 21. Interest for the current fiscal year is based upon a net capital investment of \$514,407,363.78, as of June 30, 1942, which is the above net capital investment of \$606,691,351.46 less Canal defense property, \$48,241,450.74, and additional facilities (third set locks), \$44,042,536.94, and amounts to \$15,432,220.92.

TABLE NO. 15.—*Accounts payable*

	Fiscal year 1943	Fiscal year 1942
United States invoices.....	(\$1, 013, 529. 03)	\$169, 236. 53
Isthmus vouchers.....	790, 387. 35	1, 164, 349. 47
Current pay rolls.....	3, 494, 766. 12	3, 294, 840. 41
Unpaid salaries and wages.....	26, 322. 24	76, 958. 66
Drums, carboys, and reels.....	(9, 153. 86)	5, 877. 72
Total.....	3, 288, 792. 82	4, 711, 262. 79

() Denotes debit balance.

The above table covers all current obligations of The Panama Canal, except deposits to guarantee payment of bills, and special deposit funds, all of which are covered by table No. 9, custodial funds.

The debit balance shown for United States invoices for fiscal year 1943 is due to payments for purchases of materials and supplies being made at time of acceptance at factory in the United States, while charge is not taken into stock until goods are actually received on the Isthmus.

The debit balance shown for drums, carboys, and reels is due to charge to this account for empty drums being returned to contractors but, due to delay in actual return of these drums to contractors, collection has not yet been made and credit to this account had not yet been accomplished.

TABLE NO. 16.—*Depreciation reserves, fiscal year 1943*

CANAL DEPRECIATION

	Balance July 1, 1942	Accruals	Retirements	Balance June 30, 1943
Locks	\$13,054,845.46	\$193,764.55		\$13,548,610.01
Madden Dam	384,654.66	55,085.09		439,739.75
Spillways	575,654.04	21,320.52		596,974.56
Aids to Navigation	416,476.49	11,783.56		428,260.05
Wharves and piers	2,481,688.62	144,324.60		2,826,013.22
Dry docks	901,248.70	42,657.93		943,906.63
Coaling plants	3,461,516.24	147,506.05		3,609,022.30
Dredging division plant	509,511.75	32,753.42		542,265.17
Ferry plants	287,400.27	30,221.00	\$58,000.00	259,621.27
Office buildings	489,821.01	25,916.27		515,737.28
Go'gas Hospital	427,889.21	18,962.93		446,852.14
Corozal Hospital	109,238.50	6,722.72		115,961.22
Colon Hospital	86,688.68	4,942.78		91,631.46
Dispensaries	62,923.67	3,595.68		66,519.35
Palo Seco Colony	45,627.14	3,542.77		49,169.91
Quarantine stations	65,392.70			65,392.70
Other health department structures	36,225.59	2,959.89		39,185.45
Playgrounds	94,728.57	7,974.83	6,566.40	96,137.00
Post offices	10,616.46	2,967.31	1,592.62	11,991.15
Schoolhouses	285,963.97	24,371.11		310,335.08
Fire stations	36,913.55	2,541.34		39,454.89
Police stations	27,443.16	6,262.05		33,705.21
Prisons	7,500.00	750.00		8,250.00
Courthouses	96,171.95	3,754.65		99,926.60
Other buildings and structures	266,053.26	12,634.50	2,225.00	276,462.76
Contingent reserve	212,370.80	92,684.44	5,593.68	299,461.56
Total, Canal depreciation	24,631,564.45	1,200,000.00	73,977.70	25,760,586.75

PLANT DEPRECIATION

	Adjusted balance July 1, 1942	Accruals	Retirements	Balance June 30, 1943
FLOATING PLANT				
Tugs and craneboats	\$1,143,500.00	\$82,860.00		\$1,226,360.00
Launches	296,515.84	52,198.31	\$30,206.69	318,507.46
Dredges	1,719,300.00	81,930.00	15,000.00	1,786,230.00
Dump scows	1,097,790.79	43,140.00		1,140,930.79
Machine barges	376,142.65	55,044.00		431,186.65
Lighters	172,154.24	18,780.00	20,702.00	170,232.24
Launch repair barges		696.00		696.00
Total, floating plant	4,805,403.52	334,648.31	65,908.69	5,074,143.14
BUSINESS FIXED PROPERTY				
Electric power system	2,453,774.63	159,793.32		2,613,567.95
Electric work	56,029.88	5,501.36		61,531.24
Water system	1,108,848.48	130,286.00		1,239,134.48
Municipal work	13,219.43	2,886.00		16,105.43
Mechanical shops	974,081.98	63,065.04		1,037,147.02
Fuel-oil plants	994,177.51	73,511.88		1,067,689.39
General storehouses	616,741.05	40,247.00		656,988.05
Motor transportation	31,342.14	5,478.00		36,820.14
Motor car repair shops	23,304.32	4,356.00		27,660.32
Building division	16,554.75	1,642.24		18,196.99
Gold quarters	2,423,594.21	368,244.59	33,856.30	2,757,982.50
Silver quarters	462,145.20	40,262.37	1,200.00	501,207.57
Cinibhouse business structures	285,353.80	16,984.87		302,338.67
District quartermasters' supplies	15,621.45	2,439.00		18,060.45
Total, business fixed property	9,474,788.83	914,697.67	35,056.30	10,354,430.20
BUSINESS EQUIPMENT				
Electric power system	116,878.46	14,220.00		131,098.46
Electric work	7,405.87	264.00		7,669.87
Municipal work	312,484.29	32,096.16	11,896.78	332,683.67
Mechanical shops	1,025,637.65	203,052.41	33,716.16	1,194,973.90
General storehouses	84,048.62	6,199.40		90,248.02
Motor transportation	456,126.51	141,585.34	17,850.28	579,861.57
Motor car repair shops	33,342.13	3,112.11		36,454.24
Building division	87,880.12	13,281.19	1,847.67	99,313.64
Panama Canal press	58,712.79	6,408.23	3,544.22	61,576.80
District quartermasters' supplies	2,008.00	60.00		2,068.00
Total, business equipment	2,184,525.34	420,278.84	68,855.11	2,535,949.07
Total, business fixed property and equipment	11,659,314.17	1,334,976.51	103,911.41	12,890,379.27
Total, plant depreciation	16,464,717.69	1,669,624.82	169,820.10	17,964,522.41

TABLE No. 16.—*Depreciation reserves, fiscal year 1943—Continued*

SUMMARY

	Adjusted balance July 1, 1942	Accruals	Retirements	Balance June 30, 1943
Canal depreciation.....	\$24,634,564.45	\$1,200,000.00	\$73,977.70	\$25,760,586.75
Plant depreciation.....	16,464,717.69	1,669,624.82	169,820.10	17,964,522.41
Total depreciation.....	41,099,282.14	2,869,624.82	243,797.80	43,725,109.16

The accrued balance as of June 30, 1943, for Canal depreciation applies to depreciable Canal general property shown on table No. 6, amounting to \$105,766,345.70, and for plant depreciation applies to floating plant, business fixed property, and business equipment, shown on tables No. 3, 4, and 5, amounting to \$56,063,616.89.

TABLE No. 17.—*Reserve for repairs*

	Balance July 1, 1942	Accruals	Charges	Balance June 30, 1943
Tugs and craueboats.....	\$148,494.83	\$129,900.00	\$171,872.25	\$106,522.58
Dredges.....	19,771.16	576,565.25	459,945.72	136,390.69
Dump scows.....	206,130.43	188,280.00	229,568.33	164,842.10
Machine barges.....	56,734.88	51,680.00	58,406.96	50,007.92
Lighters.....	14,898.33	-----	-----	14,898.33
Total, floating plant.....	446,029.63	946,425.25	919,793.26	472,661.62
Electric work, equipment.....	27,024.33	57,991.72	64,101.06	20,914.99
Total, business equipment.....	27,024.33	57,991.72	64,101.06	20,914.99
Total reserve for repairs.....	473,053.96	1,004,416.97	983,894.32	493,576.61

TABLE No. 18.—*Reserve for leave*

	Fiscal year 1943	Fiscal year 1942
Electrical division.....	\$451,422.12	\$310,773.19
Municipal division.....	870,106.59	780,549.04
Shops and drydocks.....	981,806.07	431,089.70
Motor transportation.....	189,725.60	109,999.57
Motorcar repair shops.....	83,374.75	50,254.91
Building division.....	287,355.15	249,228.17
Total.....	2,863,790.28	1,931,894.58

The foregoing table represents the reserve for vacation pay due employees of the principal business divisions. The reserve is credited by adding a percentage to direct labor charges for work performed by the division listed above to the credit of this account. The account is debited with the amount paid to employees when leave is actually taken.

TABLE NO. 19.—*Deferred credits*

	Fiscal year 1943	Fiscal year 1942
Executive office	\$405.07	
Comptroller's office	4,540.80	\$9,420.00
Paymaster's office		630.00
Civil government	28,253.35	16,271.52
Postal service	829,017.91	776,793.92
Health department	235,098.83	386,803.45
Office engineer	4,635.02	11,185.02
Meteorology and hydrography		2,375.35
District quartermaster, Balboa		10,085.24
Nautical books and charts		4,634.29
Port captain, Balboa	19,056.29	550.00
Lighthouse subdivision	41,119.23	39,450.00
Pacific locks	20,460.89	62,936.00
Atlantic locks	8,524.03	22,983.50
Dredging division	4,021.55	77,793.65
Experimental gardens	6,613.72	
Special engineering division	629,423.42	1,218,465.06
General accounts, suspense	58,186.69	45,519.62
Electric power system	6,654.81	8,711.32
Electric work	54,870.77	75,952.07
Water system	94,586.41	85,000.00
Municipal work	1,623,130.50	1,654,550.84
Shops and dry docks	279,911.47	152,452.05
Fuel-oil plants	144,724.16	103,596.36
Motor transportation	9,000.00	20,809.05
Motorcar repair shops	20,000.00	4,154.90
Building division	55,325.02	22,240.18
Panama Canal press	3,800.00	5,297.40
Gold quarters		71,500.00
Subsistence section	17,907.58	23,950.11
District quartermasters' supplies	21,827.71	22,000.00
Contingencies:		
Maintenance and operation	45,928.74	45,928.74
Sanitation	752.67	752.67
Civil government	148.07	148.07
Total	4,268,125.61	5,073,543.17

This account covers expenses accrued or estimated which have been charged to operating accounts, but for which it was impracticable to institute corresponding payments at close of the accounting period. These amounts are cleared as soon as corresponding charges are passed for payment, or contingent expenses arise.

TABLE NO. 20.—Consolidated statement of income, expenses, and net revenues

	Fiscal year 1943	Fiscal year 1942
Canal operations:		
Canal revenues:		
Tolls.....	\$7,368,680.74	\$9,772,112.42
Postal surplus.....	(190,801.75)	(256,288.82)
Other miscellaneous receipts.....	201,645.65	235,604.00
Total Canal revenues (table No. 24).....	7,379,524.64	9,751,427.60
Canal earnings (table No. 25).....	17,199,865.11	15,334,438.61
Total revenues.....	24,579,389.75	25,085,866.21
Canal expenses:		
Executive offices.....	1,403,131.10	1,357,972.42
Playgrounds.....	103,270.00	100,000.00
Accounting department.....	1,047,457.81	927,968.53
Washington office.....	797,837.51	728,950.85
Civil government.....	2,370,974.25	1,895,945.28
Postal service.....	824,175.35	1,310,337.77
Health department.....	4,318,379.64	3,741,968.02
Office engineer.....	1,341,959.00	1,272,342.88
Meteorology and hydrography.....	38,900.57	39,518.29
Public buildings and grounds.....	727,204.43	638,170.93
Marine division.....	2,116,520.34	1,784,184.23
Locks operation and maintenance.....	1,685,458.14	1,624,609.18
Locks overhaul.....	298,507.12	96,163.20
Dams and spillway.....	86,183.14	54,553.89
Dredging division.....	8,154,901.59	6,546,890.47
Municipal expenses.....	576,395.46	455,047.44
Experimental gardens.....	663,765.47	270,283.95
Recruiting and repatriating employees.....	15,399.88	21,796.95
Transportation of employees on Isthmus.....	144,246.19	151,272.07
Damage to vessels.....	34,694.03	10,707.23
Miscellaneous general expenses.....	89,068.48	82,656.82
Depreciation on Canal general property.....	1,200,000.00	1,200,000.00
Annual payment to Republic of Panama.....	430,000.00	430,000.00
Total expenses.....	28,468,429.50	24,741,340.40
Net Canal revenues (table No. 25).....	(3,839,039.75)	344,525.81
Fixed capital charge.....	14,397,115.85	14,367,904.44
Surplus or (deficit).....	(18,286,155.60)	(14,023,378.63)
Business operations:		
Business revenues.....	79,632,689.33	90,439,957.50
Business expenses.....	78,140,146.63	89,705,491.66
Net business revenues.....	1,492,542.70	734,465.84
Fixed capital charge.....	1,035,105.07	934,094.06
Surplus or (deficit).....	457,437.63	(199,628.22)
Combined operations:		
Revenues.....	104,212,079.08	115,525,823.71
Expenses.....	106,608,576.13	114,446,832.06
Net revenues.....	(2,396,497.05)	1,078,991.65
Fixed capital charge at 3 percent.....	15,432,220.92	15,301,998.50
Surplus or (deficit).....	(17,828,717.97)	(14,223,006.85)
Net capital investment (table No. 14).....	514,407,363.78	510,066,616.76
Combined net revenues.....	(2,396,497.05)	1,078,991.65
Percent of capital return.....	(.47)	.21

() Denotes deficit.

A summary comparison of net revenues and capital interest, by years, from 1921 to date, is shown on table No. 21, following, together with a brief description of accounting policy governing charges to operating expenses.

TABLE No. 21.—*Revenues, expenses, and computed surplus*

Fiscal year	Tolls	Civil revenues	Business profits	Total revenues
1914-20	\$33,303,581.67	\$1,206,579.86	\$536,098.34	\$35,046,259.87
1921	11,261,919.31	213,986.19	564,211.20	12,040,116.70
1922	11,193,383.47	192,208.85	323,259.16	11,708,851.48
1923	17,507,630.52	184,213.54	1,140,642.50	18,832,486.56
1924	24,289,603.16	392,250.73	901,624.12	25,583,478.01
1925	21,374,664.12	207,954.04	765,916.85	22,348,535.01
1926	22,927,456.03	217,680.50	841,310.29	23,986,446.82
1927	24,217,185.32	391,623.50	876,536.80	25,485,345.62
1928	26,913,513.11	232,532.57	736,719.43	27,912,765.11
1929	27,123,534.33	243,391.39	737,850.26	28,104,775.98
1930	27,077,117.36	349,255.35	760,971.66	28,187,344.37
1931	24,644,550.39	346,030.35	562,764.17	25,553,344.91
1932	20,706,568.49	327,444.23	557,095.44	21,591,108.16
1933	19,621,158.61	310,014.16	1,135,708.62	21,066,881.39
1934	24,065,065.16	96,666.67	1,366,755.12	25,528,486.95
1935	23,338,977.90	81,957.68	1,021,216.61	24,442,152.19
1936	23,506,806.46	119,915.21	920,185.23	24,546,906.90
1937	23,147,433.54	98,775.74	917,360.14	24,163,569.42
1938	23,215,192.39	90,335.19	824,612.60	24,130,140.18
1939	23,699,413.82	106,929.55	681,272.48	24,487,615.85
1940	21,177,243.04	118,480.75	1,033,886.06	22,329,609.85
1941	15,190,379.36	275,775.08	1,008,741.70	19,474,896.14
1942	9,772,112.42	204,397.88	734,465.84	10,710,974.14
1943	7,368,680.74	10,843.90	1,492,542.70	8,872,067.34
Total	509,673,170.72	6,019,242.91	20,441,747.32	536,134,160.95

Fiscal year	Net appropriation expenses ¹	Net revenues	Capital interest 3 percent ²	Computed surplus ³
1914-20	\$36,657,766.89	(\$1,611,507.02)	\$14,674,964.74	(\$1,611,507.02)
1921	9,578,300.14	2,461,816.56	15,253,780.02	(12,213,148.18)
1922	8,469,017.63	3,239,833.85	15,202,430.18	(12,013,946.17)
1923	8,240,777.56	10,591,709.00	15,150,900.33	(4,610,721.18)
1924	8,923,905.39	16,659,572.62	15,099,730.49	1,508,672.29
1925	8,666,693.44	13,681,841.57	15,085,580.64	(1,417,888.92)
1926	8,543,468.47	15,442,978.35	15,068,580.79	357,397.71
1927	9,547,715.02	15,937,630.60	15,035,029.29	569,049.81
1928	9,501,200.82	18,411,564.29	15,013,374.55	3,376,535.00
1929	10,187,150.71	17,917,625.27	14,987,527.89	2,904,250.72
1930	9,893,920.93	18,293,423.44	14,986,578.04	3,305,895.55
1931	10,693,353.53	14,859,991.38	14,943,807.66	(126,586.66)
1932	10,239,211.84	11,351,806.32	14,907,732.16	(3,591,911.34)
1933	9,555,672.02	11,511,209.37	15,039,203.81	(3,396,522.79)
1934	7,931,383.77	17,597,103.18	15,124,193.39	2,557,899.37
1935	9,481,429.57	14,960,722.62	15,159,597.04	(163,470.77)
1936	9,675,067.13	14,871,839.77	15,205,397.30	(287,757.27)
1937	10,289,624.05	13,873,945.37	15,229,992.24	(1,331,451.93)
1938	9,575,624.32	14,554,515.86	15,250,404.68	(675,476.38)
1939	10,145,272.18	14,342,343.67	15,243,237.66	(908,061.01)
1940	10,041,950.30	12,287,659.55	15,275,108.42	(2,955,578.11)
1941	9,614,117.60	9,860,778.54	15,301,998.50	(5,414,329.88)
1942	9,406,901.79	1,304,074.35	15,432,220.92	(13,997,924.15)
1943	11,268,564.39	(2,396,497.05)		(17,828,717.97)
Total	256,128,089.49	280,006,071.46	347,671,370.74	(67,665,299.28)

¹ After deduction of Canal earnings repaid to appropriations.

² Interest prior to July 12, 1920, is included in capital investment account.

³ Parentheses denote deficits.

⁴ Includes adjustment of \$225,082.70 in postal operations. (See table No. 32.)

⁵ Includes deficit of \$109,801.75 in postal operations. (See table No. 32.)

The above table summarizes by classes the revenues received by The Panama Canal by fiscal years from 1921 and shows the net results from operations after deducting therefrom the net current expenses chargeable to appropriations and the current interest charge on the capital investment. The interest rate of 3 percent has been used in making computations a great many years. The use of this rate received the approval of two organizations which investigated Panama Canal matters and was formally adopted when the present accounting system was established in 1932. It has been considered a fair and reasonable rate, as the Government at various times has paid much higher rates for the use of money.

Interest chargeable to operations is not included on the balance sheet and no interest charge against the Canal is actually made by the United States Treasury.

Total revenues on the foregoing statement represent receipts which must be covered into the United States Treasury and relinquished from control of The Panama Canal. Earnings repayable to Canal appropriations, and reexpendable by the Canal, are deducted from gross operating expenditures, in order to present a comparison of funds covered into the Treasury with funds chargeable to operating account, exclusive of capital additions.

The absence of tax charges is compensated for by the inclusion in Canal operating accounts of the direct costs of civil government, health and welfare activities. Neither capital nor operating expenses of The Panama Canal include the cost of the military and naval establishments on the Isthmus; however, all important exchanges of services with these interests are covered by cash settlements, or reciprocal allowances.

By including in the accounts all revenues properly applicable to Canal activities and by charging against the total revenue the net appropriation expenses including charges for depreciation and interest at 3 percent on the capital invested but excluding any charge to amortize the investment, there has accumulated as of June 30, 1943, as shown by the above table, a deficit of \$67,665,299.28.

TABLE No. 22.—(Capital refunds)

Balance June 30, 1942	\$295,042.187.19
Cash covered into U. S. Treasury	8,247,385.63
Business profits (table No. 8)	\$696,855.00
Revenue due U. S. Treasury (table No. 9)	7,550,522.64
Total	303,280,572.82
Appropriations, fiscal year 1943 (detail below)	100,790,610.00
Less: Net capital additions, current year (table No. 14)	40,824,321.28
Net appropriations for operating account and incomplete construction	59,991,288.72
Net capital refunds, June 30, 1943	243,388,284.10

SCHEDULE OF OPERATING APPROPRIATIONS¹

Fiscal year	Maintenance and operation	Sanitation	Civil government	Construction additional facilities	Miscellaneous	Annual payment to Panama	Total
1914 to 1928	\$83,826,211.00	\$9,379,482.00	\$11,160,470.00		\$151,341.55	\$2,000,000.00	\$106,517,507.55
1929	6,832,000.00	722,000.00	1,172,400.00			250,000.00	8,976,400.00
1930	8,000,000.00	820,000.00	1,201,000.00			250,000.00	10,271,000.00
1931	10,162,470.00	753,900.00	1,295,190.00			250,000.00	12,461,560.00
1932	9,359,808.00	782,189.00	1,351,689.00			250,000.00	11,743,686.00
1933	11,891,011.00	755,650.00	1,300,000.00			250,000.00	14,196,661.00
1934	11,172,700.00	698,426.00	1,235,278.00		\$1,150,000.00	430,000.00	14,686,404.00
1935	4,971,400.00	768,501.00	792,935.00			430,000.00	6,962,926.00
1936	6,900,000.00	874,616.00	1,022,981.00			430,000.00	9,227,597.00
1937	9,149,201.00	899,793.00	1,073,950.00			430,000.00	11,552,944.00
1938	8,519,000.00	918,000.00	1,131,760.00		45,000.00	430,000.00	11,003,760.00
1939	8,149,000.00	833,800.00	1,167,325.00		4155,000.00	430,000.00	10,835,125.00
1940	22,823,087.00	1,004,535.00	1,180,802.00		636,307.87	430,000.00	25,474,731.87
1941	38,292,667.00	1,045,303.00	1,192,011.00	\$15,000,000.00	6325,000.00	430,000.00	56,285,071.00
1942	29,595,580.00	1,635,223.00	1,295,017.00	54,932,000.00		430,000.00	67,487,826.00
1943	40,152,437.00	1,546,000.00	1,498,373.00	56,826,800.00	7277,000.00	430,000.00	100,730,610.00
Total	309,796,368.00	23,537,508.00	29,071,181.00	106,768,800.00	2,069,632.42	7,550,000.00	478,813,509.42
Less: Net capital additions, 1922 to 1943 (table No. 14)							177,650,398.17
Net appropriation for canal maintenance and operation and incomplete construction							301,163,111.25

¹ Operating appropriations include authorization for capital construction.² Appropriations for increase in compensation.³ N. R. A. \$1,000,000; Reimbursement of unemployed aliens, \$150,000.⁴ Appropriations for Memorial to Maj. Gen. George W. Goethals.⁵ Navy appropriation.⁶ Appropriation for construction of Trans-Isthmian Highway.⁷ Transfer from Public Works Administration, F. W. A., for recreational facilities.⁸ Covers payments to Panama 1921 to 1928. Payments from 1913 to 1920 charged to cost of construction, \$2,000,000.

The total deposits covered into the United States Treasury from the beginning of Canal construction, with minor adjustments to reconcile changes in accounting process, amount to \$544,551,395.35, and deducting therefrom net appropriations for operation and incomplete construction amounting to \$301,163,111.25, as shown above, produces the net capital refundment balance of \$234,388,244.10. Deposits covered into the Treasury consist principally of the earned revenues cited in table No. 21, which total \$536,134,160.95, the balance being made up of sales of property, principally during the construction period, and return of appropriation balances.

Although above table shows a net cash refundment of \$243,388,-284.10, such refundment is not deductible from net capital investment as shown in table No. 14, which is considered as measuring the value of The Panama Canal as an instrument of public utility upon which a perpetual return should be earned; furthermore, annual interest on net asset valuation chargeable to operating account is not included in cash transactions with the United States Treasury. Such interest at 3 percent from 1921 to 1943 would have amounted to \$347,671,-370.74, as shown in table No. 21, and would have extinguished all capital refundments to date, if such interest charges had been assessed against Canal revenues.

TABLE NO. 23.—*Balance of revenues and refundments*

DEBITS	
Revenue due U. S. Treasury (table No. 9)-----	¹ \$241, 487. 01
Appropriated cash in U. S. Treasury (table No. 8)-----	61, 212, 888. 86
Appropriated cash with fiscal officers (table No. 8)-----	12, 753, 682. 97
Accounts receivable (table No. 10)-----	5, 393, 441. 57
Stores (table No. 11)-----	13, 434, 960. 33
Work in progress (table No. 12)-----	1, 139, 582. 13
Deferred charges (table No. 13)-----	1, 776, 138. 97
Total debits-----	<u>95, 952, 181. 84</u>
CREDITS	
Accounts payable (table No. 15)-----	3, 288, 792. 82
Reserve for repairs (table No. 17)-----	493, 576. 61
Reserve for leave (table No. 18)-----	2, 863, 790. 28
Deferred credits (table No. 19)-----	4, 268, 125. 61
Total credits-----	<u>10, 914, 285. 32</u>
Net current accounts-----	85, 037, 896. 52
Less proportion under capital investment-----	<u>4, 695, 000. 00</u>
Balance-----	80, 342, 896. 52

¹ Includes \$135,197.30 of bills in process of collection.

A revolving fund now fixed at \$4,695,000 is set up in Canal accounting for working capital, and is credited to capital investment account in addition to funds used for construction and equipment, the total constituting the base for capital interest computations. Net working capital in excess of the revolving fund is considered as a temporary advance of Treasury funds, but is usually less than appropriated funds not withdrawn from the Treasury. Working capital investments are in constant process of accrual and liquidation for account of the United States Treasury.

Due to war emergency, the debit balances under working capital are abnormally large.

TABLE NO. 24.—*Canal revenues*

	Fiscal year 1943	Fiscal year 1942
Tolls.....	\$7,368,680.74	\$9,772,112.42
Postal surplus.....	(190,801.75)	(256,288.82)
Licenses, fees, fines, etc.....	201,186.63	223,200.76
Miscellaneous.....	459.02	12,313.24
Total.....	7,379,524.64	9,751,427.60

() Denotes deficit.

Canal revenues shown above comprise earnings which by law must be covered into the United States Treasury as miscellaneous receipts, United States Revenues, and relinquished from control of The Panama Canal, as distinguished from earnings repayable to Canal appropriations shown on tables No. 25 and 26.

Debit balances under postal surplus are explained in notes on table No. 32.

TABLE NO. 25.—*Canal earnings and expenses*

	Expenses	Earnings	Net expenses
Executive department:			
Executive offices.....	\$1,403,131.10	\$1,016,961.10	\$386,170.00
Playgrounds.....	103,270.00		103,270.00
Total.....	1,506,401.10	1,016,961.10	489,440.00
Accounting department:			
Comptroller's office.....	902,234.65	708,749.65	193,485.00
Paymaster's office.....	73,777.35	55,790.09	17,987.26
Collector's office.....	71,445.81	47,701.81	23,744.00
Total.....	1,047,457.81	812,241.55	235,216.26
Washington office.....	797,837.51	577,687.51	220,150.00
Civil government:			
Civil affairs.....	18,679.63	3,170.59	15,509.04
Customs.....	121,543.00	31,782.96	89,760.04
License bureau.....	26,986.88	10,272.26	16,714.62
Division of schools.....	757,730.57	197,454.31	560,276.26
Fire protection.....	345,877.22	194,128.61	151,748.61
Police and prisons.....	1,066,898.86	558,125.22	508,773.64
Magistrates' courts.....	25,937.96	4,512.00	21,425.96
District court.....	7,320.13		7,320.13
Total.....	2,370,974.25	999,445.95	1,371,528.30
Postal service.....	824,175.35	824,175.35	

¹ Includes deficit of \$190,801.75 transferred to surplus account and included on table No. 20.

TABLE NO. 25.—*Canal earnings and expenses*—Continued

	Expenses	Earnings	Net expenses
Health department:			
Chief health office.....	\$114, 231. 43	\$27, 292. 85	\$86, 938. 58
Gorgas Hospital.....	2, 129, 450. 35	1, 658, 164. 74	471, 285. 61
Colon Hospital.....	426, 359. 43	257, 008. 20	169, 351. 23
Corozal Hospital.....	239, 287. 05	104, 903. 69	134, 383. 36
Margarita Hospital.....	136, 242. 89	67, 802. 70	68, 440. 19
Palo Seco Colony.....	54, 451. 47	28, 659. 00	25, 792. 47
Line dispensaries.....	216, 401. 77	131, 106. 78	85, 294. 99
Quarantine service.....	181, 842. 40	117, 887. 50	63, 954. 90
Sanitation:			
Panama.....	48, 226. 15	1, 961. 28	46, 264. 87
Colon.....	17, 983. 68	4, 357. 00	13, 626. 68
Zone.....	437, 114. 56	263, 834. 56	173, 280. 00
Street cleaning and garbage collection:			
Panama.....	225, 771. 18	169, 328. 37	56, 442. 81
Colon.....	91, 017. 28	68, 272. 97	22, 744. 31
Total.....	4, 318, 379. 64	2, 900, 579. 64	1, 417, 800. 00
Technical divisions:			
Office engineer.....	1, 341, 959. 00	1, 255, 334. 26	86, 624. 74
Meteorology and hydrography.....	38, 900. 57	5, 808. 82	33, 091. 75
Total.....	1, 380, 859. 57	1, 261, 143. 08	119, 716. 49
Public buildings and grounds:			
Chief quartermaster's office.....	102, 582. 75	91, 900. 00	10, 682. 75
District quartermaster:			
Balboa.....	287, 128. 09	119, 163. 76	167, 964. 33
Pedro Miguel.....	38, 130. 60	19, 335. 48	18, 795. 12
Gamboa.....	47, 043. 87	25, 333. 68	21, 710. 19
Cocoli.....	40, 012. 32	33, 587. 03	6, 425. 29
Gatun.....	64, 806. 42	55, 047. 92	9, 758. 50
Cristobal.....	147, 500. 38	107, 358. 86	40, 141. 52
Total.....	727, 204. 43	451, 726. 73	275, 477. 70
Marine division:			
Marine superintendent.....	54, 128. 45	7, 484. 38	46, 644. 07
Port captain, Balboa:			
General.....	236, 110. 41	44, 762. 05	191, 348. 36
Admeasurement of vessels.....	23, 808. 84	-----	23, 808. 84
Pilotage.....	198, 521. 10	142, 756. 26	55, 764. 84
Handling lines.....	72, 454. 55	59, 032. 50	13, 422. 05
Tugs.....	285, 720. 19	281, 531. 12	4, 189. 07
Launches.....	129, 860. 90	156, 702. 44	(26, 841. 54)
Port captain, Cristobal:			
General.....	116, 583. 57	464. 76	116, 118. 81
Admeasurement of vessels.....	32, 658. 51	-----	32, 658. 51
Pilotage.....	213, 490. 69	139, 713. 40	73, 777. 29
Handling lines.....	67, 887. 59	63, 052. 58	4, 835. 01
Tugs.....	213, 532. 37	199, 032. 49	14, 499. 88
Launches.....	108, 491. 25	119, 674. 50	(11, 183. 25)
Aids to navigation.....	363, 271. 92	44, 881. 76	318, 390. 16
Total.....	2, 116, 520. 34	1, 259, 088. 24	857, 432. 10
Locks operation and maintenance:			
Pacific locks:			
Miraflores locks.....	606, 015. 90	-----	606, 015. 90
Pedro Miguel locks.....	447, 207. 13	-----	447, 207. 13
Quadrennial overhaul.....	144, 314. 85	-----	144, 314. 85
Total.....	1, 197, 537. 88	-----	1, 197, 537. 88
Atlantic locks:			
Gatun locks.....	632, 235. 11	-----	632, 235. 11
Quadrennial overhaul.....	154, 192. 27	-----	154, 192. 27
Total.....	786, 427. 38	-----	786, 427. 38
Total.....	1, 983, 965. 26	-----	1, 983, 965. 26
Dams and spillways:			
Gatun Dam.....	50, 577. 99	-----	50, 577. 99
Gatun spillway.....	3, 936. 11	-----	3, 936. 11
Madden Dam.....	31, 669. 04	-----	31, 669. 04
Total.....	86, 183. 14	-----	86, 183. 14

() Denotes credit balance.

TABLE No. 25.—*Canal earnings and expenses*—Continued

	Expenses	Earnings	Net expenses
Dredging division:			
Atlantic breakwater	6,928.40		\$6,928.40
Atlantic entrance	13,983.42		13,983.42
Gatun Lake	12,720.47		12,720.47
Galliard Cut	702,609.39		702,609.39
Miraflores Lake	5,216.93		5,216.93
Pacific entrance	321,222.05		321,222.05
Cristobal Harbor	6,227.68		6,227.68
Balboa Harbor	583,577.50		583,577.50
Removal of floating obstructions	57,047.39		57,047.39
Maintenance of floating cranes	119,316.45		119,316.45
Dredging division work	6,325,961.91	\$6,449,929.40	(123,967.49)
Total	8,154,901.59	6,449,929.40	1,704,972.19
Experimental gardens	663,765.47	646,886.56	16,878.91
Municipal expenses:			
Street lighting	16,903.28		16,903.28
Water for municipal purposes	23,400.00		23,400.00
Roads, streets, and sidewalks	216,284.76		216,284.76
Sewer system	23,715.24		23,715.24
Thatcher Ferry	296,092.18		296,092.18
Total	576,395.46		576,395.46
Miscellaneous general expenses:			
Recruiting and repatriating employees	13,393.03		13,393.03
Repatriating alien ex-employees	2,006.85		2,006.85
Transportation on the Isthmus	144,246.19		144,246.19
Damage to vessels	34,694.03		34,694.03
Depreciation on Canal general property	1,200,000.00		1,200,000.00
Annual payment to the Republic of Panama	430,000.00		430,000.00
Cash relief to alien ex-employees	85,913.48		85,913.48
Settlements with evacuated land lessees	3,155.00		3,155.00
Net Canal expenses	28,468,429.50	17,199,865.11	11,268,564.39

SUMMARY

Canal revenues (table No. 24)	\$7,379,524.64
Net Canal expenses	11,268,564.39
Net Canal expenses	3,889,039.75

() Denotes credit balance.

The earnings of the divisions engaged in the transiting of vessels through the Canal, as well as earnings of sanitation and civil government divisions, are deducted from gross expenses to arrive at the net expenditure from Canal appropriations, which in turn is deducted from Canal revenues to arrive at net Canal revenues, exclusive of business division profits.

Earnings of the executive offices and accounting department represent principally a proportional charge against business divisions of The Panama Canal and the Panama Railroad Co. Business divisions are reimbursed for this proportional expense by adding a surcharge to the direct cost on all work performed. The Panama Railroad's proportion is distributed to the various units of that organization.

The earnings of the Washington office comprise charges against business storehouses operations to cover a proportional part of the cost of purchasing, inspection, and handling of material used by business divisions or sold to outside interests, which expense is covered through surcharges added to the price of material.

TABLE NO. 26.—*Business expenses, revenues, and profit or loss*

	Expenses	Revenues	Profit or loss
Electric power system.....	\$1,182,344.84	\$1,698,188.58	\$515,843.74
Electric work.....	4,046,604.18	4,060,052.75	13,448.57
Telephone, telegraph, and signal work.....	279,968.32	279,968.32	-----
Water system.....	839,119.40	1,004,822.83	165,703.43
Municipal work.....	15,197,167.58	15,213,183.39	16,015.81
Shops and dry docks.....	16,343,645.59	16,445,604.59	101,959.00
Wharfage (P. R. R. rental).....	21,517.87	84,000.00	62,482.13
Fuel-oil plants.....	1,129,620.63	1,617,781.44	488,160.81
General storehouses:			
Regular operations.....	21,297,328.37	21,314,930.65	17,602.28
Sale of Government property (net).....		2,046.00	2,046.00
Motor transportation.....	2,589,879.88	2,606,696.41	16,816.53
Motorcar repair shops.....	806,621.90	815,708.46	9,086.56
Building division.....	8,946,903.65	8,963,722.93	16,819.28
Panama Canal press.....	561,896.32	569,780.47	7,884.15
Gold quarters.....	1,127,392.43	1,130,038.55	2,646.12
Silver quarters.....	566,369.15	566,452.00	82.85
Subsistence section.....	1,327,817.07	1,327,817.07	-----
District quartermasters' supplies.....	473,466.32	477,379.29	3,912.97
Sand and gravel operations.....	503,512.36	518,427.90	14,915.54
Public works:			
Panama.....	579,768.95	604,564.15	24,795.20
Colon.....	319,201.82	331,523.55	12,321.73
Total.....	78,140,146.63	79,632,689.33	1,492,542.70

The profit on business operations as above, amounting to \$1,492,542.70 compares with profits in 1942 of \$734,465.84.

Profits on public works, Panama and Colon, amounting to \$37,116.93 represent interest which has been currently reported for coverage into general funds of the United States Treasury. The balance of the total profits, amounting to \$1,455,425.77 will be immediately covered into the Treasury as miscellaneous receipts, United States revenues, in accordance with regulations.

Business operations of The Panama Canal are conducted separately from operating activities pertaining directly to the transiting of vessels, and government of the Canal Zone. The Annual Appropriation Acts for The Panama Canal authorize the use of appropriated funds for the conduct of auxiliary business activities, provided that funds so advanced are recovered through earnings, and with further proviso that any net profit derived from such business activities be covered annually into the United States Treasury.

TABLE No. 27.—*Balances in appropriations and funds, June 30, 1934*

	U. S. Treasury appropriations	Cash on hand	Accounts receivable	Transfers available	Work in progress and suspense	Storehouse stock	Total
ASSETS							
Maintenance and operation, Panama Canal	\$19,288,544.71	\$11,525,819.48	\$5,095,136.32	\$88,420.41	\$442,403.89	\$12,751,035.56	\$49,941,360.37
Sanitation, Canal Zone, Panama Canal	41,020.44	104,971.99	201,036.28	---	---	672,337.06	1,019,365.77
Civil Government, Panama Canal and Canal Zone	96,236.57	102,023.90	62,164.05	73,987.39	---	11,567.71	346,000.52
Postal funds, Canal Zone (special funds)	598,673.56	201,278.23	10,906.40	---	---	---	810,858.19
Repatriation of unemployed aliens, Panama Canal	80,000.00	10,091.14	---	---	---	---	90,091.14
Memorial to Maj. Gen. George W. Goethals	156,508.58	---	---	---	3,491.42	---	160,000.00
Construction, additional facilities, Panama Canal	40,610,805.00	475,480.73	24,197.02	---	---	---	41,119,483.35
Working funds, Panama Canal:							
Access roads projects	---	80,394.90	---	---	---	---	222,394.90
Hospitalization of military personnel	142,000.00	86,483.00	---	---	---	---	111,483.00
Policing Army civilian housing areas	25,000.00	18,630.36	---	---	---	---	18,630.36
(Trust fund) Venereal disease control	---	7,863.02	---	165.28	---	---	8,028.30
Transfer from Defense Public Works, FWA—Community facilities	185,100.00	140,616.22	---	---	9,181.32	---	334,807.54
Miscellaneous receipts, United States revenues	---	106,289.71	135,197.30	1,455,425.77	---	---	1,696,912.78
Total	61,212,888.86	12,859,972.68	5,528,638.87	2,387,998.85	455,076.03	13,434,960.33	95,879,536.22
LIABILITIES							
Maintenance and operation, Panama Canal	4,010,000.00	2,650,791.07	1,455,425.77	---	8,622,529.29	33,292,614.24	49,941,360.37
Sanitation, Canal Zone, Panama Canal	675,000.00	349,621.79	2,013.03	138,630.65	---	(146,800.00)	1,019,365.77
Civil Government, Panama Canal and Canal Zone	10,000.00	187,578.79	---	21,577.03	---	126,844.70	346,000.52
Postal funds, Canal Zone (special fund)	---	23,389.60	4,147.00	829,017.91	---	(45,066.38)	810,858.19
Repatriation of unemployed aliens, Panama Canal	---	---	58.44	---	---	190,032.70	90,091.14
Memorial to Maj. Gen. George W. Goethals	---	---	---	---	---	160,000.00	160,000.00
Construction, additional facilities, Panama Canal	---	57,120.19	716,113.66	629,423.42	---	39,716,826.08	41,119,483.35
Working funds, Panama Canal:							
Access roads projects	---	---	---	---	---	---	222,394.90
Hospitalization of military personnel	---	---	88,501.10	133,893.80	---	---	111,483.00
Policing Army civilian housing areas	---	10,895.56	68,338.00	43,145.00	---	---	18,630.36
(Trust fund) Venereal disease control	---	3,089.66	910.41	6,824.39	---	---	8,028.30
Transfer from Defense Public Works, FWA—Community facilities	---	6,306.16	---	4,968.64	---	---	334,807.54
Miscellaneous receipts, United States revenues	---	1,696,912.78	51,591.38	---	---	277,000.00	1,696,912.78
Total	4,695,000.00	4,985,705.60	2,387,998.85	1,807,481.14	8,622,529.29	73,380,821.34	95,879,536.22

() Denotes deficit.

This table shows the status of Panama Canal working capital by the various appropriations and funds by which it is separately accountable under existing laws and Treasury regulations.

A revolving fund of \$4,695,000 is set aside in Canal accounting to cover the net investment in current accounts, which sum is included in the capital investment account (table No. 14).

The following table shows the detail of the funded reserves stated in the foregoing table as \$8,622,529.29.

TABLE No. 28.—*Funded reserves, fiscal year 1943*

	Balance July 1, 1942	Accruals	Expenditures	Balance June 30, 1943
Marine division:				
Tugs and craneboats	\$296,119.72	\$22,560.00		\$178,613.93
Arraijan, equipment			\$156.37	
Alhajuela, reconstruct			139,909.42	
Launches	¹ 24,295.13	34,849.56		2,813.45
Gaviota, construct			32,850.29	
Poucan II			23,480.95	
Machine barges	12,670.91	240.00		12,910.91
Launch repair barges		696.00		696.00
Total	333,085.76	58,345.56	196,397.03	195,034.29
Dredging division:				
Tugs and craneboats	304,216.57	60,300.00		364,516.57
Launches	27,636.86	17,348.75		44,985.61
Dredges	527,440.00	81,930.00		609,370.00
Dump scows	280,139.58	43,140.00		323,279.58
Machine barges	² (151,375.35)	54,804.00		² (96,571.35)
Lighters	² (39,248.60)	18,780.00		² (20,468.60)
Total	948,809.06	276,302.75		1,225,111.81
Total, transit divisions	1,281,894.82	334,648.31	196,397.03	1,420,146.10
Electric power system:				
Hydroelectric plant, Gatun	257,261.95	32,520.00		289,781.95
Diesel electric plant, Miraflores	¹ 418,537.32	46,824.00		465,361.32
Substations	192,519.66	35,809.32		228,328.98
Transmission system	162,318.27	23,520.00		185,838.27
Madden Dam system	133,729.37	21,120.00		154,849.37
Electric ranges	137,205.80	14,220.00		151,425.80
Total	1,301,572.37	174,013.32		1,475,585.69
Electric work:				
Fixed property	37,064.32	5,501.36		42,565.68
Equipment	6,022.15	264.00		6,286.15
Total	43,086.47	5,765.36		48,851.83
Water system:				
Pump station buildings	² (26,591.47)	7,440.00		² (19,151.47)
Pump station machinery	429.71	20,244.00		20,673.71
Filter plant buildings	142,595.73	21,804.00		164,399.73
Filter plant machinery	43,627.73	14,354.00		57,981.73
Reservoirs and tanks	118,799.80	11,124.00		129,923.80
Pipe lines—Large mains	172,686.93	20,604.00		193,290.93
Pipe lines—Distribution	20,890.11	34,716.00		35,116.12
Ancon			12,508.59	
Balboa			4,714.99	
Pedro Miguel			³ (107.94)	
Gatun			2,136.95	
Agua Clara			1,237.40	
Total	472,438.54	130,286.00	20,489.99	582,234.55
Municipal work:				
Fixed property	9,774.10	2,886.00		12,660.10
Equipment	91,995.43	32,096.16	38,814.77	85,276.82
Total	101,769.53	34,982.16	38,814.77	97,936.92
Mechanical shops:				
Balboa shops	195,080.21	43,623.84		238,704.05
Balboa railroad shops	41,031.09	6,094.20		47,125.29
Cristobal shops	70,934.69	13,347.00		84,281.69
Equipment:				
Balboa	95,816.69	141,563.00	36,568.41	200,811.28
Cristobal	118,333.19	61,489.41	50,701.62	129,120.98
Total	521,195.87	266,117.45	87,270.03	700,043.29

See footnotes at end of table.

TABLE NO. 28.—*Funded reserves, fiscal year 1943—Continued*

	Balance July 1, 1942	Accruals	Expenditures	Balance June 30, 1943
Fuel oil plants:				
Balboa:				
Pumping plant	\$39,267.85	\$1,293.84	-----	\$43,561.69
Storage tanks	47,412.74	9,850.20	-----	57,262.94
Pipe lines	113,735.25	17,037.48	-----	130,772.73
Dock No. 4	9,000.00	3,300.00	-----	13,200.00
Cristobal:				
Pumping plant	39,419.63	4,317.72	-----	43,737.35
Storage tanks	65,033.12	9,920.64	-----	74,953.76
Gasoline storage tanks	-----	-----	\$45,768.24	-----
Pipe lines	226,705.81	24,792.00	-----	251,497.81
Total	541,474.40	73,511.88	45,768.24	569,218.04
General storehouses:				
Fixed property	126,391.69	40,247.00	-----	166,638.69
Equipment	53,559.27	6,199.40	53,293.71	6,464.96
Total	179,950.96	46,446.40	53,293.71	173,103.65
Motor transportation division:				
Fixed property	33,242.26	5,478.00	-----	38,720.26
Motor vehicles	2 (59,310.38)	141,585.34	53,556.79	28,718.17
Total	2 (26,068.12)	147,063.34	53,556.79	67,438.43
Motorcar repair shops:				
Fixed property	25,121.33	4,356.00	-----	29,477.33
Equipment	17,146.35	3,112.11	1,788.60	18,469.86
Total	42,267.68	7,468.11	1,788.60	47,947.19
Building division:				
Fixed property	10,105.82	1,642.24	-----	11,748.06
Equipment	2 (5,209.74)	13,281.19	3 (3,250.50)	11,321.95
Total	4,896.08	14,923.43	3 (3,250.50)	23,070.01
Panama Canal press: equipment	14,076.52	6,408.23	3,853.85	17,530.90
Gold quarters:				
Fixed property	365,465.37	368,244.59	-----	185,656.19
New quarters:				
Balboa	-----	-----	347,294.34	-----
Ancon	-----	-----	34,559.65	-----
Corozal	-----	-----	73,973.62	-----
Pedro Miguel	-----	-----	380.32	-----
Margarita	-----	-----	22,185.77	-----
Alterations and improvements	-----	-----	36,680.18	-----
Furniture	-----	-----	32,979.89	-----
Total	365,465.37	368,244.59	548,053.77	185,656.19
Silver quarters:				
Fixed property	417.06	40,262.37	-----	3,611.99
New quarters, Cristobal	-----	-----	23,003.23	-----
Alterations and improvements	-----	-----	14,064.21	-----
Total	417.06	40,262.37	37,067.44	3,611.99
District quartermasters' supplies:				
Gasoline stations	15,771.45	2,439.00	-----	18,210.45
Equipment	15,152.50	60.00	-----	15,212.50
Total	30,923.95	2,499.00	-----	33,422.95
Clubhouse business structures: Fixed property	52,379.80	16,984.87	-----	69,364.67
Total, business divisions	3,646,746.48	1,334,976.51	886,706.69	4,095,016.30
Total reserve for replacements	4,928,641.30	1,669,624.82	1,083,103.72	5,515,162.40
Total reserve for repairs (table No. 17)	473,053.96	1,004,416.97	983,894.32	493,576.61
Total reserve for leave (table No. 15)	1,681,894.58	2,138,791.94	1,206,896.24	2,613,790.28
Total, funded reserves (table No. 27)	7,083,589.84	4,812,833.73	3,273,894.28	8,622,529.29

¹ Balance revised² Indicates credit balance³ Indicates credit adjustment.⁴ Less \$250,000.

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